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Fourth Census of Canada, 1901. Third Volume.—Manufactures. Presented 24th April, 1906, by Hon. S. A. Fisher..... *Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME D.

Fourth Census of Canada, 1901. Fourth Volume.—Vital Statistics, School Attendance, Status Dwellings and Families, Institutions, Churches and Schools, Electoral Districts and Representation. Presented 24th April, 1906, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

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(This volume is bound in two parts.)

1. Report of the Auditor General, for the fiscal year ended 30th June, 1905. Partial report presented 12th, 14th and 26th March, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

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2. Public Accounts of Canada, for the fiscal year ended 30th June, 1905. Presented 12th March, 1906, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

3. Estimates of the sums required for the services of Canada for the nine months ending 31st March, 1907. Presented 12th March, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

4. Supplementary Estimates for the year ending 30th June, 1906. Presented 12th March, 1906, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

4*a*. Further Supplementary Estimates for the year ending 30th June, 1906. Presented 20th April, 1906, by Hon. W. S. Fielding ..... *Printed for both distribution and sessional papers.*

4*b*. Further Supplementary Estimates for the year ending 30th June, 1906. Presented 20th June, 1906, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

5. Further Supplementary Estimates for the year ending 30th June, 1906. Presented 24th April, 1906, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

5*a*. Supplementary Estimates for the nine months ending 31st March, 1907. Presented 20th June, 1906, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

6. List of Shareholders in the Chartered Banks of Canada, as on the 31st December, 1905. Presented 30th April, 1906, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

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7. Report of dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of Canada, for five years and upwards, prior to December 31, 1905. Presented 28th May, 1906, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

8. Report of the Superintendent of Insurance for the year ended 31st December, 1905.
Printed for both distribution and sessional papers.

9. Abstract of Statements of Insurance Companies in Canada, for the year ended 31st December, 1905. Presented 23rd April, 1906, by Hon W. S. Fielding.
Printed for both distribution and sessional papers.

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10. Report of the Department of Trade and Commerce, for the fiscal year ended 30th June, 1905. Presented 12th March, 1906, by Hon. W. Paterson...*Printed for both distribution and sessional papers.*

10*a*. Mail Subsidies and Steamship Subventions. Supplement to the Report of the Department of Trade and Commerce, for the year ended 30th June, 1905. Presented 29th May, 1906, by Hon. W. Paterson.....*Printed for both distribution and sessional papers.*

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11. Tables of the Trade and Navigation of Canada, for the fiscal year ended 30th June, 1905. Presented 12th March, 1906, by Hon. W. Paterson.....*Printed for both distribution and sessional papers.*

12. Inland Revenues of Canada. Excise, etc., for the fiscal year ended 30th June, 1905. Presented 15th March, 1906, by Hon L. P. Brodeur.....*Printed for both distribution and sessional papers.*

13. Inspection of Weights, Measures, Gas and Electric Light, for the fiscal year ended 30th June, 1905. Presented 15th March, 1906, by Hon. L. P. Brodeur.
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14. Report on Adulteration of Food, for the fiscal year ended 30th June, 1905. Presented 25th April, 1906, by Hon. W. Templeman.....*Printed for both distribution and sessional papers.*

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15. Report of the Min ster of Agriculture, for the year ended 31st October, 1905. Presented 10th April, 1906, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

15*a*. Report of the Veterinary Director General, 1905...*Printed for both distribution and sessional papers.*

16. Report of the Director and Officers of the Experimental Farms, for the year 1905. Presented 10th April, 1906, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

17. Criminal Statistics for the year ended 30th September, 1905.
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18. Report on Canadian Archives, 1905.....*Printed for both distribution and sessional papers.*

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19. Report of the Minister of Public Works, for the fiscal year ended 30th June, 1905. Presented 30t March, 1906, by Hon. H. R. Emmerson.....*Printed for both distribution and sessional papers.*

19*a*. Report of the Royal Commission on Transportation. Presented 17th April, 1906, by Hon. C. S. Hyman.....*Printed for both distribution and sessional papers.*

19*b*. Report of the Commission on International Waterways.
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19*c*. (1) Report from the International Waterways Commission on Conditions as to Niagara Falls, and their recommendations in relation thereto. (2) Report of the Commission upon conditions existing at Sault Ste. Marie, with rules for the control of the same recommended by the Commission. Presented 4th May, 1906, by Hon. C. S. Hyman ..... *Printed for both distribution and sessional papers.*

19*d*. Second Interim Report of the Canadian Section of the International Waterways Commission. Presented 4th May, 1906, by Hon. C. S. Hyman..... *Printed for both distribution and sessional papers.*

20. Annual Report of the Department of Railways and Canals, for the fiscal year ended 30th June, 1905. Presented 12th March, 1906, by Hon. H. R. Emmerson.

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20*a*. Canal Statistics for the season of navigation, 1904. Presented 23rd March, 1906, by Sir Frederick Borden..... *Printed for both distribution and sessional papers.*

20*b*. Railway Statistics of Canada for the year ended 30th June, 1905. Presented 26th April, 1906, by Hon. H. R. Emmerson..... *Printed for both distribution and sessional papers.*

21. Report of the Department of Marine and Fisheries (Marine), for the fiscal year ended 30th June, 1905. Presented 9th April, 1906, by Hon. L. P. Brodeur

Printed for both distribution and sessional papers.

21*a*. Sixth Annual Report of the Geographic Board of Canada, containing all decisions to.

Printed for both distribution and sessional papers.

21*b*. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the registry books of Canada, on the 31st December, 1905. Presented 29th May, 1906, by Hon. R. Lemieux..... *Printed for both distribution and sessional papers.*

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22. Report of the Department of Marine and Fisheries (Fisheries), for the fiscal year ended 30th June, 1905. Presented 23rd March, 1906, by Hon. S. A. Fisher.

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23. Report of the Harbour Commissioners, etc., 1905.... *Printed for both distribution and sessional papers.*

24. Report of the Postmaster General, for the year ended 30th June, 1905. Presented 14th March, 1906, by Hon. A. B. Aylesworth..... *Printed for both distribution and sessional papers*

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25. Annual Report of the Department of the Interior, for the fiscal year ended 30th June, 1905. Presented 28th March, 1906, by Hon. W. Paterson..... *Printed for both distribution and sessional papers.*

25*a*. Report of the Surveyor General of Dominion Lands for the year ending 30th June, 1905.

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25*b*. Report of the Chief Astronomer, for the year ending 30th June, 1905.

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26. Summary Report of the Geological Survey Department for the calendar year 1905.

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26*a*. Report on the Inspection of Mines. ..... *Printed for both distribution and sessional papers*

27. Annual Report of the Department of Indian Affairs, for the fiscal year ended 30th June, 1905. Presented 26th March, 1906, by Hon. F. Oliver..... *Printed for both distribution and sessional papers.*

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28. Report of the Royal North-west Mounted Police. 1905. Presented 3rd May, 1906, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

28*a*. Supplementary Report of the Royal North-west Mounted Police. Mackenzie River District. Presented 5th June, 1906, by Sir Wilfrid Laurier.. *Printed for both distribution and sessional papers.*

29. Report of the Secretary of State of Canada, for the year ended 31st December, 1905. Presented 30th June, 1906, by Hon. W. S. Fielding ... ...*Printed for both distribution and sessional papers.*

30. Civil Service List of Canada, 1905. Presented 23rd March, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

31. Report of the Board of Civil Service Examiners, for the year ended 31st December, 1905. Presented 6th July, 1906, by Sir Wilfrid Laurier.....*Printed for both distribution and sessional papers.*

32. Annual Report of the Department of Public Printing and Stationery, for the year ended the 30th June, 1905. Presented 25th June, 1906, by Hon. W. S. Fielding.
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33. Report of the Joint Librarians of Parliament for the year 1905. Presented 8th March, 1906, by the Hon. The Speaker..... .....*Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the year ended 30th June, 1905. Presented 22nd March, 1906, by the Hon. C. Fitzpatrick.
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35. Report of the Militia Council of Canada, for the year ended 31st December, 1905. Presented 18th April, 1906, by Sir Frederick Borden... .....*Printed for both distribution and sessional papers.*

35*a*. Report of the Board of Visitors, Royal Military College, 1906. Presented 10th July, 1906, by Sir Wilfrid Laurier .....*Printed for both distribution and sessional papers.*

36. Report of the Department of Labour, for the year ended 30th June, 1905. Presented 15th March, 1906, by Hon. A. B. Aylesworth.....*Printed for both distribution and sessional papers.*

37. Return of By-Elections for the House of Commons of Canada, held during the year 1905. Presented 1st May, 1906, by Sir Wilfrid Laurier.....*Printed for both distribution and sessional papers.*

38. Copy of a Report of a Committee of the Privy Council, approved by His Excellency the Governor General on the 28th February, 1906, on the subject of the appointment of a commission to investigate with respect to certain matters relating to the business of life insurance in Canada ; and also copy of the commission appointed to conduct an investigation into life insurance matters in Canada. Presented 9th March, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

39. Return to an order of the House of Commons, dated 17th July, 1905, showing all timber lands sold or leased by the department of the interior since 1st July, 1896 ; the description and area of each lot ; the applications made therefor ; the notice or advertisement for sale or tender ; the tenders received ; the amount of each tender ; the tenders accepted ; the name and address of the person or company to whom each lot was sold or leased. Presented 12th March, 1906.—*Mr. Foster*.....*Not printed.*

40. Statement showing the expenditure on account of unforeseen expenses from the 1st July, 1905, to the 7th March, 1906, in accordance with the Appropriation Act of 1905 Presented 12th March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

41. Statement of superannuations and retiring allowances in the civil service during the year ended 31st December, 1905, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, and also whether vacancies filled by promotion or new appointment, and salary of any new appointee. Presented 12th March, 1906, by Sir Wilfrid Laurier..*Not printed.*

42. Statement in pursuance of section 17 of Civil Service Insurance Act for the year ending 30th June, 1905. Presented 12th March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

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43. Statement of the Governor General's Warrants issued since the last session of parliament, on account of the fiscal year 1905-1906. Presented 12th March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

44. Return of Treasury Board Overrulings of Auditor General's decisions, session of 1905 to session of 1906. Presented 12th March, 1906, by Sir Wilfrid Laurier..... *Not printed.*

45. First annual report of the Board of the National Transcontinental Railway Commissioners for the year ending 30th June, 1905. Presented 12th March, 1906, by Hon. H. R. Emmerson.
Printed for both distribution and sessional papers.

45a. Report of Collingwood Schreiber, Esquire, Government Chief Engineer of the Western Division of the National Transcontinental Railway, on the progress being made with the surveys and works of construction upon the western division of the Grand Trunk Pacific Railway (Winnipeg to the Pacific coast). Presented 13th March, 1906, by Hon. H. R. Emmerson.
Printed for both distribution and sessional papers.

45b. Extract from a Report of the Committee of the Privy Council approved by the Governor General on the 17th April, 1906, respecting the acceptance of the tender of the Dominion Bridge Company for the construction of a steel viaduct across Cap Rouge Valley, in District "B," in the vicinity of the city of Quebec, in connection with the Transcontinental Railway. Presented 17th April, 1906, by Sir Wilfrid Laurier.....*Not printed.*

45c. Extract from a Report of the Committee of the Privy Council, approved by the Governor General on the 14th April, 1906, respecting the acceptance of the tender of Mr. John D. McArthur, for the construction of District "F," from a point designated on the plans of the Transcontinental Railway Commissioners, at or near the city of Winnipeg to a point known as Peninsula Crossing, near the junction point of the Fort William Branch of the Grand Trunk Pacific Railway, a distance of about 245 miles. Presented 17th April, 1906, by Sir Wilfrid Laurier.....*Not printed.*

45d. Extract from a Report of a Committee of the Privy Council, approved by the Governor General on the 14th April, 1906, respecting the acceptance of the tender of Messieurs Hogan & Macdonell for the construction of 'District "B," from a point designated on the plans of the Transcontinental Railway Commissioners at the north end of the Quebec Bridge and Railway Company's bridge, in the vicinity of the city of Quebec, to a point near La Tuque, a distance of about 150 miles,' of the National Transcontinental Railway. Presented 17th April, 1906, by Sir Wilfrid Laurier.
Not printed.

46. Statement of wharfs, docks, piers and breakwaters constructed by the Department of Public Works since 1st July, 1896, with the total cost of each. Presented 13th March, 1906, by Hon. C. S. Hyman.....*Printed for sessional papers.*

46a. Statement of wharfs, docks and piers constructed by Government, 1896-1905, showing the expenditure on each such work, for repairs, from date of completion to 30th June, 1905. Presented 13th March, 1906, by Hon. C. S. Hyman.....*Printed for sessional papers.*

47. Return to an Order of the House of Commons, dated 17th July, 1905, showing the quantities of anthracite coal imported into Canada in 1904, from Great Britain or elsewhere, called Scotch anthracite coal; the various ports to which the same were brought; whether any steps were taken to ascertain whether the coal so imported was really anthracite, from a commercial or dutiable standpoint; and if any evidence was furnished at the time or times of such importation as to the amount of carbon contained in such coal. Presented 14th March, 1906.—*Mr. Macdonald (Pictou).*
Not printed.

48. Copy of General Order No. 88, made by the judges of the Supreme Court of Canada. Presented 14th March, 1906, by the Hon. The Speaker..... *Not printed.*

49. Evidence taken before the Commission on the Tariff Inquiry, 1905. Presented 14th March, 1906, by Hon. W. Paterson.....*Not printed.*

50. Report of the Commissioner, Dominion Police Force, for the year 1905. Presented 16th March, 1906, by Hon. R. Lemieux.....*Not printed.*

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51. Statement of the affairs of the British Canadian Loan and Investment Company, Limited, for the year ended 31st December, 1905. Also, a list of the shareholders on 31st December, 1905, in accordance with section 33, chapter 57, of 40 Victoria. Presented (Senate) 12th March, 1906, by the Hon. The Speaker.....*Not printed.*

52. Return of all lands sold by the Canadian Pacific Railway Company, from the 1st October, 1904, to the 1st October, 1905. Presented 19th March, 1906, by Hon. F. Oliver.....*Not printed.*

53. Order in Council of the 6th January, 1906, and Reports of His Honour Judge Myers, on inquiry into charges made against R. C. Macdonald, by half-breeds of the United States in connection with certain scrip claimed by them. Presented 19th March, 1906, by Hon. F. Oliver.....*Not printed.*

54. Report of the work of the Ottawa Improvement Commission, from the date of the appointment of the Commission, the 21st December, 1899, to the 30th June, 1905. Presented 21st March, 1906, by Sir Wilfrid Laurier.....*Printed for sessional papers.*

55. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all telegrams, reports, recommendations and correspondence in connection with the appointment of David Liddle as assistant inspector of weights and measures for the inland division of Windsor, in the province of Ontario. Presented 22nd March, 1906.—*Mr. Ingram*.....*Not printed.*

56. Return of orders in council which have been published in the *British Columbia Gazette,* between the date of last return and 31st December, 1905, in accordance with the provisions of subsection (*d*) of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. Presented 22nd March, 1906, by Hon. F. Oliver.....*Not printed.*

57. Return of orders in council which have been published in the *Canada Gazette* between the date of last return and 31st December, 1905, in accordance with the provisions of clause 91 of the Dominion Lands Act, chapter 54 of the Revised Statutes of Canada. Presented 22nd March, 1906, by Hon. F. Oliver.....*Not printed.*

58. Return to an order of the House of Commons, dated 14th March, 1906, showing the several sums of money paid to judges, under the provisions of section 13 of an Act respecting the judges of Provincial Courts, chapter 138, of the Revised Statutes, as amended by sections 7, 8 and 9, of chapter 52, of the Statutes of 1898, from 30th June, 1903, to 20th July, 1905, and under this section and amendment, as enacted by section 6 of chapter 31 of the Statutes of 1905, from the said 20th July to this date; with the items in respect of which the said several payments were made, set out and showing the payments in respect of the period before and since 20th July, 1905. Presented 23rd March, 1906.—*Mr. Lennox*.....*Not printed.*

59. Rules that have been passed by the judges of the High Court of Justice for Ontario under the provisions of the Dominion Controverted Elections Act. Presented 23rd March, 1906, by Sir Wilfrid Laurier.....*Printed for sessional papers.*

60. Ordinances of the Yukon Territory, passed by the Yukon Council in the year 1905. Presented 23rd March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

61. Return (in so far as the Department of the Interior is concerned) of copies of all orders in council, plans, papers and correspondence which are required to be presented to the House of Commons, under a resolution passed on 20th February, 1882, since the date of the last return, under such resolution. Presented 23rd March, 1906, by Hon. F. Oliver.....*Not printed.*

62. Detailed statement of all bonds and securities registered in the Department of the Secretary of State of Canada, since last Return, 23rd January, 1905, submitted to the Parliament of Canada under section 23, chapter 19, of the Revised Statutes of Canada. Presented 23rd March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

63. Return of the names and salaries of all persons appointed to or promoted in the several departments of the Civil Service, during the calendar year 1905. Presented 23rd March, 1906, by Sir Wilfrid Laurier.....*Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

63*a*. Supplementary return to an order of the House of Commons, dated 13th March, 1905, showing: (1) the number of permanent appointments, male and female respectively, made to the civil service (inside division) in Ottawa, since 1st July, 1906; (2) the present strength of the civil service in Ottawa (inside division) permanent staff, specifying whether male or female; (3) the number of temporary employees, male or female, on the pay-list for the inside division of the civil service at Ottawa for January, 1905; (4) the number of temporary employees, male or female, appointed since 1st July, 1896; (5) in addition to the permanent and temporary clerks at present employed in the public service in Ottawa, the number of artisans, labourers, or other workmen employed at Ottawa during the month of January, and showing to which department these men are attached. Presented 5th April, 1906.—*Mr. Sproule*. ..... *Not printed.*

63*b*. Further supplementary return to No. 63*a*. Presented 6th April, 1906 ..... *Not printed.*

64. Return showing remissions of interest made under section 141, as added to the Indian Act by section 8, chapter 35, 58-59 Victoria, for the year ended 30th June, 1905. Presented 26th March, 1906, by Hon. F. Oliver..... *Not printed.*

65. Return to an order of the House of Commons, dated 28th March, 1906, for list of names of persons who were asked to tender, otherwise than by newspaper advertising, for flour supplied at Kingston, Dorchester and St. Vincent de Paul Penitentiaries, and copies of tenders received in reply to such request for prices. Presented 28th March, 1906.—*Mr. Taylor*..... *Not printed.*

66. Proceedings of Royal Commission on Insurance, and evidence taken to the 23rd March, instant. Presented 28th March, 1906, by Hon. C. Fitzpatrick ..... *Printed for distribution.*

66*a*. Further proceedings of Royal Commission on Insurance and evidence taken to the 25th April, instant, inclusive. Presented 27th April, 1906, by Hon. W. S. Fielding. .. *Printed for distribution.*

66*b*. Further proceedings of Royal Commission on Insurance and evidence taken on the 4th June, instant inclusive. Presented 6th June, 1906, by Hon W. S. Fielding..... .... *Printed for distribution.*

67. Return to an address of the House of Commons, dated 21st March, 1906, for copies of all letters and documents relating to the establishment of an Imperial Intelligence Service. Presented 28th March, 1906.—*Mr. Belcourt*..... *Printed for both distribution and sessional papers.*

67*a*. Return to an address of the Senate, dated 8th May, 1903, of any recent correspondence with the Imperial Office, *re* Pacific Cable Board, and individuals, on the establishment of an improved intelligence service and a system of empire cables. Presented 29th May, 1906.—*Hon. Mr. Ellis.* *Printed for both distribution and sessional papers.*

68. Report of Mr. W. H. Hay on the Imperial Institute. Presented 30th March, 1906, by Hon. S. A. Fisher..... *Printed for sessional papers.*

69. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all telegrams, letters, petitions, reports, documents, recommendations, investigations, correspondence and all other communications concerning the appointment and removal of Mr. Alexander Darroch from the position of collector of customs at St. Thomas, Ontario. Presented 30th March, 1906.—*Mr Ingram.* *Not printed.*

70. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. All contracts since 30th June, 1902, between the Government and (*a*) the Eastern Railway Supply Company; (*b*) the New Brunswick Petroleum Company; (*c*) the Sherman Williams Paint Company; (*d*) the Maritime Wire Fencing Company,—for supplies to any of the railways of the Government. 2. The tenders upon which such contracts were based, and all tenders made by other parties for such contracts. 3. All correspondence and communications of the railway department and officers thereof, with the several tenderers and contractors, relating to such tenders or contracts or supplies. Also all correspondence and communications between the department and its officers and between such officers, relating to such tenders, contracts or supplies. 4. All advertisements, notices, statements, accounts, papers and vouchers, relating to such contracts, or the supplies, or the payment thereof. Presented 2nd April, 1906.—*Mr. Barker*. .. .. *Not printed.*

71. Return to an order of the House of Commons, dated 28th March, 1906, showing our exports to Germany for each year from 1896 to 1905, inclusive, on the following articles: wheat, flour, oats, bacon, hams, butter, cheese and apples. Presented 4th April, 1906.—*Mr. Armstrong*..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

72. Return to an order of the House of Commons, dated 17th July, 1905, for copies of all correspondence, documents, orders, and all papers whatsoever, relating to the proposed deviation of the line of the James Bay Railway to the west of Lake Simcoe; also for copies of the original route, map and location of line, as filed in the railway department; and correspondence and papers concerning the same. Presented 4th April, 1906.—*Mr. Grant*.....*Not printed.*

73. Return to an address of the House of Commons, dated 2nd April, 1906, for copies of the correspondence passed between the Imperial government upon the subject of the petition sent of a party of British printers, complaining that they were brought to this country under misrepresentation as to exising labour conditions in Canada, and for all papers on the subject. Presented 5th April, 1906.—*Mr. Verville*.....*Not printed.*

74. Return to an order of the House of Commons, dated 21st March, 1906, for a copy of the last financial statement and balance sheet of the Quebec Bridge and Railway Company. 2. A list of the directors of the company and of its chief officers, and of its shareholders and the amount of shares held by each. 3. A statement of the bonds of the company which have been guaranteed by the government, and which have been negotiated or are pledged. 4. A statement of all moneys paid by the government on account of capital or interest on the said bonds. Presented 5th April, 1906.—*Mr. Monk.* *Not printed.*

75. Return to an order of the House of Commons, dated 17th July, 1905, for copies of all correspondence, documents, resolutions, and other papers relating to any efforts or proposals to authorize the investment of trust funds in the United Kingdom in the securities of any province of Canada, and the fulfilment of any necessary conditions to that end. Presented 5th April, 1906.—*Mr. Borden (Carleton)*.....*Not printed.*

76. Return to an order of the House of Commons, dated 21st March, 1906: 1. Showing the present indebtedness to the Dominion government of the Montreal Turnpike Trust, (*a*) on capital account (*b*) for arrears of interest. 2. The amounts collected at each toll gate belonging to the said Turnpike Trust, during the year ending 31st December, 1905. 3. The amount expended on each section or road division under the control of said Trust, during the said year, ending 31st December, 1905, and the contracts given out during the year, with the name of the contractor, the date and amount involved in each case, the cost of stone supplied, and in each case an indication as to whether tenders for such contracts were called for in the public press. 4. The amount paid out during the said year at each toll gate for salaries to day and night keeper, and all other expenditure at each of the toll gates maintained. 5. The actual indebtedness in detail of the said Trust outside of its bonds due to the government of Canada. 6. A detailed statement of sums paid out during the year outside of salaries, road maintenance and rent. Presented 5th April, 1906.—*Mr. Monk*.....*Not Printed.*

77. Return to an Order of the House of Commons, dated 19th March, 1906, for copies of all correspondence recommendations, telegrams, petitions, in possession of the Government, or any department or official thereof, with reference to the dismissal of Mr. Joseph McCabe, as postmaster at Iona, in Prince Edward Island, and the appointment of his successor. Presented 5th April, 1906.—*Mr. Martin (Queen's)*.....*Not printed.*

77*a*. Return to an order of the House of Commons, dated 17th July, 1905, for copies of all correspondence, documents, orders, and all papers whatsoever, relating to the dismissal of James Power, late postmaster at Wheatley River, Prince Edward Island, and for the appointment of a successor; also all correspondence and petitions relating to the re-appointment of the said James Power. Presented 9th April, 1906.—*Mr. McLean (Queen's)*.....*Not printed.*

77*b* Return to an order of the House of Commons, dated 5th April, 1906, for a copy of all petitions, letters, correspondence, reports, memoranda, and any other documemts respecting the dismissal of Mr. Patrick Walsh from the postmastership of East Roman Valley, in the county of Guysborough, Nova Scotia. Presented 1st May, 1906.—*Mr Lancaster*.....*Not Printed.*

77*c*. Return to an order of the House of Commons, dated 25th April, 1906, for a copy of all correspondence and orders in possession of the government, or any member or official thereof, respecting the dismissal of Mrs. Sarah Smith from the office of postmistress at Mount Buchanan, Prince Edward Island, and the appointment of Mr. Bishop in her stead. Presented 7th May, 1906.—*Mr. McLean (Queen's)*.....*Not printed.*

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77*d*. Return to an order of the House of Commons, dated 28th May, 1906, for a copy of all correspondence, telegrams and petitions, in possession of the government, or any member or official thereof, in reference to the dismissal of David D. Coffin as postmaster at Head of Hillsboro' in Prince Edward Island, and the appointment of his successor. Presented 4th June, 1906.—*Mr. Martin (Queen's)*
Not printed.

78. Return to an order of the House of Commons dated 28th March, 1906, for a copy of the report of the deputy postmaster general, that an additional first-class clerkship is necessary for the proper performance of the public business in the department, for which clerkship parliament is asked to vote money; also for a copy of the report of the deputy postmaster general, that an additional second-class clerkship is necessary for the proper performance of the public business in the department, for which clerkship parliament is asked to vote money. Presented 5th April, 1906.—*Mr. Barker.*
Not printed.

79. Return to an order of the House of Commons, dated 19th March, 1906, for copies of all petitions, letters and correspondence relating to the change of the location of the post office at French Village, Prince Edward Island. Presented 5th April, 1906.—*Mr. McLean (Queen's)*..... .....*Not printed.*

80. Return to an address of the House of Commons, dated 2nd April, 1906, for copies of all correspondence with the government by any parties in Lethbridge, concerning any matters in connection with the Lethbridge coal miners' strike, and the calling out of the mounted police in connection with the same. Presented 6th April, 1906.—*Mr. Smith (Nanaimo)*..... .....*Not printed.*

81. Return to an order of the House of Commons, dated 14th March, 1906, showing the names of all the homestead inspectors at present attached to the thirteen agencies throughout Manitoba and the Northwest, and a record showing the number of days that each inspector was absent from his regular duties, between the 1st of July and the 31st December, 1905, the cause of said absence, and a statement of expenses for each month during that period. Presented 5th April, 1906.—*Mr. McCarthy (Calgary)*... .... *Not printed.*

82. Return to an address of the House of Commons, dated 2nd April, 1906, for a copy of the order in council appointing Mr. W. A. Weeks to investigate certain matters in dispute respecting lands taken by the Prince Edward Island Railway, and certain other matters in dispute connected with that railway; also a copy of the evidence and report of the said W. A. Weeks in the matter. Presented 6th April, 1906.—*Mr. Martin (Queen's)*.....*Not printed.*

83. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all correspondence had between the government or any department or member thereof, and the Transcontinental Construction Commission, in reference to the surveys of location of the route of the Transcontinental Railway, in the province of New Brunswick. Presented 6th April, 1906.—*Mr. Crocket*..*Not printed.*

83*a*. Return to an order of the House of Commons, dated 18th April, 1906, for copies of all correspondence had between the Grand Trunk Pacific Railway Company and the government or any department thereof, and between the Grand Trunk Pacific Railway Company and the Transcontinental Railway Commission, in reference to the survey and location of the proposed Transcontinental Railway between Quebec and Moncton. Presented 1st June, 1906.—*Mr Crocket*.....*Not printed.*

84. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all forms of application for homestead entries used since the year 1890. Presented 6th April, 1906.—*Mr. Ingram.*
Not printed.

85. Statement showing the wharfs transferred to the department of marine and fisheries since 1896. Presented 6th April, 1906, by Hon. L. P. Brodeur .....*Not printed.*

86. Return to an order of the House of Commons, dated 19th March, 1906, (*a*) setting forth the various laws in the United Kingdom, and in the various dependencies and colonies of the Empire, with respect to the naturalization of aliens; (*b*) defining the effect of naturalization consummated in Great Britain, or in the various colonies or dependencies, respectively, when a person so naturalized becomes domiciled thereafter, in any other portion of the Empire; (*c*) setting forth any efforts heretofore made by the government of the United Kingdom, or of any colony or dependency, or by any body or association, for the purpose of securing uniformity in the naturalization laws throughout the Empire. Presented 6th April, 1906.—*Mr. Borden (Carleton).*
"*Report of Departmental Committee*" *printed for Sessional Papers*

CONTENTS OF VOLUME 14—*Continued.*

87. Copy of a letter addressed to S. G. Curry, Esquire, architect, informing him that, under an order in council, a commission will be to-day issued to him jointly with Mr. A. C. Hutchison, architect, of Montreal, to hold an investigation and to report upon an accident which occurred on the morning of the 5th instant, by the collapse of part of the tower in the west block extension of the departmental buildings in this city. Plans and specifications of the said extension accompany the said letter. Presented 9th April, 1906, by Hon. C. S. Hyman ..... *Not printed.*

88. Return to an order of the House of Commons, dated 6th March, 1905, for copies of all reports, returns, estimates, correspondence, writings, records, documents, memoranda, or written or printed information of any kind in the possession or control of the post office department, in reference to the question of establishing rural mail delivery in Canada, or the manner of establishing or conducting such service, and the probable cost; including any information in the possession of the department as to the working of the United States system, or such a service or system elsewhere and the annual expense and other particulars. Presented 9th April, 1906.—*Mr. Lennox.*

Printed for Sessional Papers.

89. Return to an order of the House of Commons, dated 2nd April, 1906, for a copy of all correspondence, letters, telegrams, memorials or other documents, between the post office department, or any official thereof, and any person or persons, respecting the removal of the post office in the town of Thorndale, Ontario, from the place of business of Mr. S. Duffins, to the place of business of Mr. J. Falconer. Presented 9th April, 1906.—*Mr. Elson* ..... *Not printed.*

90. Return to an order of the House of Commons, dated 19th March, 1906, showing all timber lands sold or leased by the department of the interior subsequent to the date of those included in Sessional Paper No. 39, brought down to the house on the 12th March, 1906; the description and area of such lots, the applications made therefor, the notice of advertisement for sale or tender, the tenders received, the amount of each tender, the tenders accepted, the name and address of the person or company to whom each lot was sold or leased. Presented 9th April, 1906.—*Mr. Foster* ..... *Not printed.*

91. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. The number of homesteaders to make entry in and for the territory now included in the provinces of Manitoba, Saskatchewan and Alberta, during each year between 1896 and 31st December, 1905. 2. The nationality of said homesteaders, dividing same into the following categories: (*a*) British North America; (*b*) Great Britain and Ireland; (*c*) the United States; (*d*) France, Belgium and Switzerland; (*e*) Germany, Holland, Norway, Sweden, Denmark and Iceland; (*f*) all other countries of continental Europe; (*g*) all other nationalities; (*h*) persons who previously made entry. Presented 9th April, 1906.—*Mr. Wilson* (*Lennox and Addington*) ..... *Not printed.*

91*a*. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. The number of authorizations granted, under the authority of subsection 3 of article 34 of the Dominion Lands Act, for one person to make homestead entry on behalf of another person, during each of the years of 1901, 1902, 1903, 1904 and 1905. 2. Of the homestead entries made in consequence of said authorizations, during each of the years 1901 and 1902; how many have resulted in a demand for a patent; how many have been cancelled; how many stood upon the books of the department of the interior on 1st January, 1906, as neither patented nor cancelled. 3. How many of the homesteads entered for during 1901 and 1902 on behalf of absent parties by means of powers of attorney, have been patented in the name of the person for whom the original entry was made. Presented 11th April, 1906. *Mr. Lake* ..... *Not printed.*

91*b*. Return to an order of the House of Commons, dated 14th March, 1906, showing, in respect of every case where, during the year ending 30th June, 1905, and during the six months ending 31st December, 1905, an extension of time within which to complete his entry, has been accorded any homesteader within the territory now included in the provinces of Manitoba, Saskatchewan and Alberta; giving: (*a*) the name of the applicant for said extension; (*b*) his post office address at the time of original entry; (*c*) the date and agency of original homestead entry; (*d*) the location of the land in question, indicating township, range and section; (*e*) the earliest date at which applicant might have become entitled to secure a patent, had all conditions been promptly fulfilled; (*f*) post office address of applicant at time of demand for extension; (*g*) the date of demand for extension; (*h*) the length of extension granted; (*i*) the cause of granting extension; (*j*) the name or names of any and all parties who may have communicated with the department for the purpose of recommending the granting of said extension; (*k*) the name of the homestead inspector who reported on

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the case, and whether he advised in favour of granting an extension or the contrary; (*l*) the name and address of any and every person who shall have applied to record a cancellation against said section or part thereof. All the above information to be arranged according to agencies. Presented 11th April, 1906.—*Mr. Ames*.....*Not printed.*

91*c*. Return to an order of the House of Commons, dated 14th March, 1906, showing: (*a*) the number of land sales, withdrawing even sections from homestead entry, made by the department of the interior during the year 1904-5, and during the six months ending 31st December, 1905, together with the total acreage represented thereby; (*b*) the same regarding land sales affecting only odd sections; (*c*) the same regarding land sales affecting solid blocks of both even and odd sections. Presented 23rd April, 1906.—*Mr. McCarthy (Calgary)*.....*Not printed.*

91*d*. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. The number of homestead entries recorded each fiscal year from 1870 to 1905, and also during the six months ending 31st December, 1905, for the territory comprised in the present provinces of Manitoba, Saskatchewan and Alberta. 2. The number and percentage of such entries for each year for which patents have prior to the 31st December, 1905, been granted, or recommendations made for the issue of patents. 3. The number and percentage of such entries for each year that have, prior to the 31st December, 1905, been cancelled. 4. The number and percentage of such entries for each year which, neither patented or cancelled, remained in an incompleted state on the first of January, 1906. Presented 8th June, 1906.—*Mr. Lake*.....*Not printed.*

92. Return to an order of the House of Commons, dated 14th March, 1906, showing the name and post office address of each person or company having a closed grazing lease, granted for a period of more than three years, by the department of the interior, of lands in Alberta or Saskatchewan, giving in each instance, (*a*) the location boundaries and area of each tract of land so leased; (*b*) the date of issue and of expiry of said lease; (*c*) the annual rental specified therein; (*d*) and the amount of overdue rental wherever such be the case. Presented 9th April, 1906.—*Mr Ames*.....*Not printed.*

93. Return to an address of the House of Commons, dated 28th March, 1906, for copies of all correspondence, telegrams, memoranda, reports and orders in council, in possession of the government, or any member or official thereof, in connection with the grant of an additional subsidy to the province of Prince Edward Island in 1901, of $30,000 a year, and the basis on which the said subsidy was agreed to be paid to the province. Presented 10th April, 1906.—*Mr. Martin (Queen's)*.....*Not printed.*

94. Return to an order of the House of Commons, dated 2nd April, 1906, for copies of all correspondence and contracts, if any, list of payments to men employed by the department of marine and fisheries in construction of Lake Ocebe lighthouse, on the Maganetawan River, district of Parry Sound. Presented 10th April, 1906.—*Mr. Bennett*.....*Not printed.*

95. Return to an address of the House of Commons, dated 17th April, 1906, for copies of orders in council and correspondence having reference to the assumption by the department of railways and canals of the several dams owned by the Ontario government on the head and subsidiary waters of the Trent canal. Presented 17th April, 1906.—*Hon. H. R. Emmerson*.....*Not printed.*

95*a*. Return to an order of the House of Commons, dated 9th April, 1906, showing the progress made and sums expended from time to time upon the construction of the Trent canal, giving the dates of the various contracts let, the completion of said contracts, the names of contractors on said contracts, the amount paid in extras, and the causes of these extras. Presented 26th April, 1906.—*Mr. Hughes (Victoria)*.....*Not printed.*

96. Return to an address of the House of Commons, dated 14th March, 1906, for copies of all correspondence between the provincial governments on the subject of the readjustment of provincial subsidies. Presented 17th April, 1906.—*Mr. Parmelee*..... *Printed for both distribution and sessional papers.*

97. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all petitions, reports, letters, notices, telegrams, correspondence, recommendations, bonds, leases, papers and documents in relation to a site and new post office building in the county of Elgin, at Aylmer. Presented 17th April, 1906.—*Mr. Ingram*.....*Not printed.*

98. Return to an order of the House of Commons, dated 28th March, 1906, showing all amounts paid for dredging in the province of Ontario, from the 1st July, 1905, up to the present time; the place where such work was performed; the names of parties doing such work, and the amount paid therefor; also of any unpaid amounts due or alleged to be due for dredging, showing the amount, the parties claiming, and where the work was done. Presented 17th April, 1906.—*Mr. Bennett.*

Not printed.

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99. Return to an order of the House of Commons, dated 17th April, 1906, for copy of a circular letter, dated the 19th March, 1906, addressed to the judges of the various courts throughout the Dominion by the deputy minister of justice, embodying the question propounded in the house of commons on on the 14th March, 1906, regarding the manner in which the provisions of section 7 of 4 and 5 Edward VII, cap. 31, are being observed, and the answer given thereto on behalf of the government by the minister of justice. Presented 17th April, 1906.—*Hon. C. Fitzpatrick*..... ... *Not printed.*

99*a*. Return to an order of the House of Commons, dated 28th March, 1906, showing, (*a*) the number of judges whose salaries are paid out of the consolidated revenue of Canada; (*b*) the name and residence of each judge; (*c*) the amount of salary and expenses paid to each judge; (*d*) the area of the judicial district in which such judge exercises jurisdiction, and in the case of local, district, and county judges, the population of the district; (*e*) the number of cases tried by each judge in each year since the 1st January, 1901; (*f*) the number of motions, petitions, &c., disposed of by each judge during each year, at chambers or in a summary manner; (*g*) the number of days during which each judge was actually engaged in the performance of judicial duties; (*h*) the number of days during which each judge was engaged in any occupation, business or matter other than the performance of his judicial duties. Presented 17th April, 1906.—*Mr. Leanox*..... ....*Not printed.*

100. Return to an order of the House of Commons, dated 9th April, 1906, for a copy of the report made by the deputy minister of labour, on the result of his investigation into the complaints of the Winnipeg printers, and any papers, showing what action, if any, has been taken by the government on his report. Presented 17th April, 1906.—*Mr. Verville*..... .....*Not printed.*

101. Return to an order of the House of Commons, dated 28th March, 1906, showing what land sales have been made in blocks or area of more than one-half section, during the years 1903, 1904 and 1905, in Manitoba, the Territories, including the new provinces of Alberta and Saskatchewan, and British Columbia; to whom the same were sold in each instance; the price per acre, and the date of sale in each instance. Presented 17th April, 1906.—*Mr. Sproule*.....*Not printed*

102. Return to an order of the House of Commons, dated 13th March, 1905: 1. For copies of all advertisements, tenders, contracts, plans, specifications and papers, relating to the construction of the several sections of the Murray Harbour Branch Railway. 2. Of the several articles of rolling stock referred to at page 2186 of Hansard of 28th April, 1904, supplied on capital account to the aforesaid railway in each of the years there mentioned; with the prices at which each article was charged to capital. 3. The names of the companies, persons or railways from which each such article was acquired, and the price therefor; stating if the article was new or second-hand. 4. The use to which each such article was applied when acquired, what compensation was received for such use, from whom, and how the proceeds were applied. 5. Where each such article of rolling stock is now, in whose use, and on what terms. Presented 17th April, 1906.—*Mr. Barker*.....*Not printed.*

103. Report of an inquiry into certain matters connected with the construction of the Ottawa post office. Presented 18th April, 1906, by Hon. C. S. Hyman. ....*Not printed.*

104. Return to an order of the House of Commons, dated 21st March, 1906, for copies of the contract, together with plans and specifications, between the government and the Dominion Coal Company, for the improvement of Glace Bay Harbour for public purposes; also copies of all correspondence, telegrams, memoranda, and representations made by delegates, members of parliament, or any other persons, having reference thereto; also copies of all accounts furnished to the government for expenditures on Glace Bay Harbour, by the Dominion Coal Company. Presented 19th April, 1906. *Mr Martin (Queen's)*.....*Not printed.*

105. Return to an address of the Senate, dated 15th March, 1906, of the number and amount of policies transferred from assessment section to legal reserve section under Act of 1904, by the Mutual Reserve Life Insurance Company of New York; also the number and amount of policies written by the company during the year 1905 and the cash payments made thereon. Presented 19th April, 1906.—*Hon. Mr. McMullen*..... .....*Not printed.*

106. Return to an address of the House of Commons, dated 19th March, 1906, for copies of all orders in council, surveys, reports, options, agreements for the purchase or lease, letters, telegrams, correspondence and other documents of every nature and description, relating to the acquisition of land for the purpose of military training at Petawawa, in the province of Ontario, together with the names, occupations, and addresses of all persons, firms and corporations from whom any such lands

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were purchased, leased or otherwise acquired; the dates when such property was purchased, leased or otherwise acquired. Also a return showing the extent of the lands purchased, leased or otherwise acquired from each person, firm or corporation, the consideration therefor, the amount of the purchase or rental, and all amounts payable in respect thereof, including any commission upon said purchase, rental or acquisition. Also the names of all persons civil or military, who acted for the government in connection with such purchasing, leasing or other acquisition. Also all letters, telegrams, papers, correspondence and other documents between the vendor or lessee, or any persons acting for them and the government, or any person acting for the government, including all protests of persons owning or claiming to own land in the vicinity; and all correspondence between such persons and the government, and all correspondence between any person acting for the government, and any person or persons claiming to be interested in any such purchase, sale or acquisition. Also the names of all persons engaged in making the final or other settlement of any claims for the purchasing, leasing or other acquisition of any such lands, or for trespass upon or interference with any adjoining lands, or the persons residing thereon, and a full statement of all the amounts, if any, paid to each such person engaged in making any such settlement, or in making any arrangement in connection with such claims. Also a statement of the amount and nature of all claims for trespass or interference, and of all sums paid or payable in respect thereof. Presented 23rd April, 1906.—*Mr. Worthington*..... *Not printed.*

107. Return to an order of the House of Commons, dated 28th March, 1906, showing the number of mail contracts in Peel county, giving location, number of miles, names of couriers, and price paid. Also date of commencement, date of expiration, and names of bondsmen; also if public tenders were asked; the name of each preceding contract, with name of courier, and the price paid. Presented 23rd April, 1906.—*Mr. Blain*..... *Not printed.*

108. Return to an order of the House of Commons, dated 2nd April, 1906, for copies of all reports and communications from the superintendent of insurance to the government, or to the minister of finance, during the years 1903, 1904 and 1905, relating or referring to the desirability or expediency of any further amendment or amendments to the Insurance Act, or relating or referring to any defects in said act. Presented 23rd April, 1906.—*Mr. Borden (Carleton)*..... *Not printed.*

108*a* Return to an order of the House of Commons, dated 14th March, 1906, for a copy of the special report of the superintendent of insurance addressed to the minister of finance, bearing date 9th November, 1905; also copies of all other reports, correspondence and documents, from 1st January, 1905, up to the date of the return, respecting the regulation of life insurance in Canada. Presented 23rd April, 1906.—*Mr. Borden (Carleton)*..... *Not printed.*

108*b*. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all telegrams, reports, communications, investigations, letters and documents of every description, relating to the necessity of investigating the working of insurance companies doing business in the Dominion of Canada, including all correspondence, communications and other documents, whether advocating or opposing, or otherwise relating to the commission recently appointed for the above purpose; or any investigation either by the government or by a commission, committee of the house, or otherwise, into the matters aforesaid; also in connection with the recommendation and appointment of the commissioners. Presented 23rd April, 1906.—*Mr. Ingram*..... *Not printed.*

109. Return to an order of the House of Commons, dated 6th March, 1905, for copies of all correspondence, documents, papers, and reports, not already brought down relating to the harbour at Port Colborne, the breakwater thereof, and elevators, or proposed elevators therein. Presented 23rd April, 1906.—*Mr. Barker*..... *Not printed.*

110. Return to an order of the House of Commons, dated 21st March, 1906, for copies of all thermograph records of temperatures on ocean steamers in the possession of the government, taken during the season of 1905, stating: (1) where the thermograph was placed in each case, whether in cold storage chambers, cool air chambers, ventilated chambers, unventilated chambers, or on deck or other part of the vessel, exposed only to the natural ocean temperature, and in this latter instance, if liable to be exposed to the sun's rays; (2) the kind of produce that was stored in the chamber if any; (3) date of sailing of steamer, the port from which sailing, name of vessel and line of steamers; (4) where the chamber was a ventilated chamber, state method of ventilation, size and number of intakes, also of outflows for air. Presented 23rd April, 1906.—*Mr. Smith (Wentworth)*..... *Not printed.*

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111. Return to an order of the House of Commons, dated 28th March, 1906, for copies of all reports made subsequent to 3rd April, 1905, in respect of Joseph Nixon, land agent at Macleod. Presented 23rd April, 1906. *Mr. Foster* ..... *Not printed.*

112. Return to an order of the House of Commons, dated 14th March, 1906, showing the total number of land patents issued, together with the acreage covered thereby, in and for the territory included within the limits of the present provinces of Manitoba, Saskatchewan and Alberta, between the year 1872 and the 31st December, 1905, under each of the following forms of grant, stating also whether odd or even sections were affected: commutation grants, homesteads, Manitoba Act grants, military bounty grants, Northwest half-breed grants, parish sales, quit claim special grants, railways, sales of mining, farming, ranching, &c., school land sales, special grants, and all others. Presented 23rd April, 1906. *Mr. Ames* ..... *Not printed.*

112*a*. Return to an order of the House of Commons, dated 14th March, 1906, showing the parcels of land, other than railway grants, which since 1896, have been sold, in the present province of Alberta or Saskatchewan, for irrigation projects; giving in each instance area, location and price obtained, and the name of the company or individual to whom sale was made. Presented 23rd April, 1906.—*Mr Ames* ..... *Not printed.*

112*b*. Return to an address of the House of Commons, dated 14th March, 1906, for copies of all contracts and agreements between the government, or any department of the government, and the Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company, and all orders in council, reports, papers, documents and correspondence respecting: (*a*) any loan to the said company; (*b*) any indebtedness of the said company to the crown or to the government; (*c*) any lands to which the company might become entitled by virture of any statute, contract or agreement; (*d*) any land granted to or earned by the company; (*e*) the area within which such lands might be selected by the company; (*f*) any enlargement, change or alteration of the area within which such lands might be selected by the company, or by any purchaser from the assignee of the company. 2. All correspondence respecting the matters above mentioned between the government, or any department of the government, or any official or person acting or purporting to act for the government and the said company, or any official thereof, or any person acting or purporting to act therefor, or any assignee of or purchaser from the said company. 3. All orders in council relating to, touching or concerning the said company's land grant, or the area within which the same might be selected, or any enlargement or alteration of that area. 4. All correspondence between the government, or any department or official thereof, and the Saskatchewan Valley Land Company, or any officer or person purporting to act for that company, or any person or persons, firm or firms, syndicate or syndicates, from whom the Saskatchewan Valley Land Company acquired any portion of the land grant of the Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company. 5. All correspondence between any shareholders or persons interested in the Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company, with the government or any department or official thereof, and all claims and demands made by that company, or by any person interested therein against the government, in respect of the said land grant, or the selection thereof, or any of the matters above referred to. Presented 1st May, 1906.—*Mr. Borden (Carleton)* ..... *Not printed.*

112*c*. Supplementary return to No. 112*b*. Presented 11th May, 1906 ..... *Not printed.*

113. Return to an order of the House of Commons, dated 28th March, 1906, showing the original tenders received by the department of the interior in connection with the leasing of timber berths Nos. 1158 1175, 1192, 1219, 1231, and 1232, during the years 1904 and 1905, with copies of all correspondence in reference therero, had with the minister of the interior, the department itself, or any officer thereof; and the various transfers, if any, made of the leases after they were granted to the successful tenderers, giving name of transferee and date of transfer, in each case. Presented 23rd April, 1906.—*Mr. Foster* ..... *Not printed.*

114. Return to an order of the House of Commons, dated 23rd April, 1906, showing the number of permanent employees at present in the service of the House of Commons, the names and duties of each; the salary and length of service in each case; the number of sessional employees at present in the service of the House of Commons, the daily pay of each, and the names and duties of each; the number of employees of both classes who were employed in the session of 1896. Presented 24th April, 1906.—*Mr. Sproule* ..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

114*a*. Return giving the information asked for by the House of Commons in their message, dated 30th April, 1906, requesting their honours to furnish to the Commons a return showing the number of permanent employees at present in the service of the Senate, the names and duties of each, and the salary and length of service in each case; the number of sessional employees at present in the service of the Senate, the daily pay of each, and the names and duties of each; the number of employees of both classes who were employed in the session of 1896. Presented 11th May, 1906.—*Mr. Sproule*.....*Not printed*.

114*b*. Return to an order of the Senate, dated 8th instant, showing payments made to permanent and sessional employees during the fiscal year 1895-6, and 1904-5. Presented 14th May, 1906.—*Hon Sir Mackenzie Bowell*.....*Not printed*.

115. Return to an order of the House of Commons, dated 28th March, 1906, for copies of all correspondence between the Collingwood Dry Dock Company and any department in reference to bounty payable to said company; also a copy of the valuation of said dock, if any, made on behalf of the department of public works. Presented 24th April, 1906.—*Mr. Bennett*.....*Not printed*.

116. Return to an order of the House of Commons, dated 2nd April, 1906, showing: *(a)* what quantities of fish of different classifications, naming them, were entered for export at the ports of Port Arthur, Fort William, Sault Ste. Marie, Manitoulin Island and all Georgian Bay ports, respectively, during the fiscal years ending 30th June, 1890, 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904, 1905; *(b)* the value of such consignments so entered; *(c)* the amount of duty paid thereon; *(d)* the county or counties to which the said consignments were exported. Presented 24th April, 1906.—*Mr. Boyce*.....*Not printed*.

117. A copy of a Treaty of Commerce and Navigation between Great Britain and Japan. Presented 24th April, 1906, by Sir Wilfrid Laurier.....*Printed for sessional papers*.

118. Return to an order of the House of Commons, dated 28th March, 1906, for copies of all contracts for supplies of food for the permanent military forces and mounted police of the Dominion; also for all the supplies of food to the volunteers at their annual drill camps last summer; also for the supplies to the military schools of the Dominion. Presented 26th April, 1906.—*Mr. Smith (Wentworth)*.....*Not printed*.

118*a*. Supplementary return to No. 118. Presented 1st May, 1906.....*Not printed*.

119. Return to an order of the House of Commons, dated 23rd April, 1906, for copies of all reports, letters, communications, surveys, papers and documents respecting any defects in the Peterborough lift-lock, or any difficulties in the operation of the said lock, or any defects in the Trent Valley canal in the vicinity of or in connection with the Peterborough lift-lock. Presented 26th April, 1906.—*Mr. Barker*.....*Not printed*.

119*a*. Return to an order of the House of Commons, dated 14th May, 1906, for copies of all correspondence, inquiries, reports, or other data bearing upon the Trent canal in connection with the lift lock at Peterborough and the works at Kirkfield; together with all correspondence with engineers, solicitors and contractors, in connection with the same. Presented 13th June, 1906.—*Mr. Hughes (Victoria)*.....*Not printed*.

120. Return to an order of the House of Commons, dated 25th April, 1906, for a copy of all contracts with steamship companies for steamboat service between Canada and Mexico. Presented 27th April, 1906.—*Mr. McLean (Queen's)*.....*Printed for both distribution and sessional papers*.

121. Extract from a Report of the Committee of the Privy Council approved by the Governor General on the 21st April, 1891, on a report from the minister of the interior in relation to the case of 'The Temperance Colonization Society (Limited).' Presented 27th April, 1906, by Sir Wilfrid Laurier. *Not printed*.

121*a*. Certified copy of a Report of a Committee of the Honourable the Privy Council, approved by His Excellency the Governor General in Council, on the 21st April, 1901, respecting "The Temperance Colonization Society, Limited," and defining in general terms the mode of dealing with colonization companies desiring to have their agreements cancelled and their accounts with the government closed. Presented 29th May, 1906, by Hon. F. Oliver.....*Not printed*.

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122. Return to an address of the House of Commons, dated 2nd April, 1906, for copies of all orders in council, or other authority, for the survey of a branch line of railway from the main line of the Prince Edward Island Railway to Stanley Bridge; also for copies of all engineers' reports, memoranda, &c., correspondence, telegrams, or other documents in relation thereto; including the claims of Austin J. Macneill and others for damages to property in connection with the said survey. Presented 30th April, 1906.—*Mr Martin (Queen's)*.....*Not printed.*

123. Return to an address of the House of Commons, dated 9th April, 1906, for copies of all letters, telegrams, communications and correspondence received since the first day of January, 1905, from any government, corporation, firm, or person, respecting the quality of fruit exported from Canada and relating to the inspection of such fruit; and copies of all letters and communications from any department of the government in reply thereto. Presented 30th April, 1906.—*Mr. Smith (Wentworth*.....*Not printed.*

123*a*. Partial Return (in so far as the Department of Trade and Commerce is concerned) to an address of the Senate, dated 24th April, 1906, for a statement showing: 1st. The number of barrels and boxes of apples (stated separately) exported from Canada to foreign countries, including those shipped through United States ports; 2nd. The number of packages of Canadian apples (stated as aforesaid) delivered at the following European ports: London, Liverpool, Glasgow, Manchester, Bristol, Belfast, Hamburg, Havre and Antwerp. The number of barrels and boxes (stated separately) and to be given separately, for each of the aforesaid ports; 3rd. The number of packages as aforesaid, bearing the marks required by the Fruit Marks Act, stating separately the number of packages bearing each of the different marks authorized by the said act; 4th. The number of packages as aforesaid, which were found by the inspectors appointed by the department of agriculture or the commercial agents of the department of trade and commerce, to be dishonestly packed or falsely marked; 5th. The names of all inspectors appointed by the government, or the department of agriculture operating either in Canada or elsewhere, under the provisions of the Fruit Marks Act, and the salary and other allowances paid to each, and the territory covered by each inspector; 6th. The names of all the commercial agents employed by the government or the department of trade and commerce and operating in the United Kingdom, the British Colonies and foreign countries and the salary and other allowances paid to each, and the territory covered by each agent. Presented 9th May, 1906.—*Hon. Mr. Ferguson*.....*Not printed.*

123*b*. Supplementary return to No. 123*a*. Presented 9th May, 1906.....*Not printed.*

124. Return to an address of the House of Commons, dated 9th April, 1906, for a copy of all contracts between the Ross Rifle Company and the government, or the department of militia, for the supply of rifles, ammunition, or other articles, and all orders in council, correspondence, reports, documents and papers relating to such contracts or to the subject-matter thereof, or to the operations of the company, or to its dealing with the government, or any of the departments thereof, including the department of customs. Presented 1st May, 1906.—*Mr. Worthington*.....*Not printed.*

125. Return to an order of the House of Commons, dated 23rd April, 1906, for a copy of the report of A. E. DuBerger, on the drug and proprietary medicine trade of Canada. Presented 1st May, 1906.—*Mr. Parmelee*.....*Printed for both distribution and sessional papers.*

126. Return to an order of the House of Commons, dated 23rd April, 1906, for a copy of the report made by the deputy minister of labour on the results of his investigation into the importation of Italian labourers into the city of Montreal in the spring of 1904. Presented 1st May, 1906.—*Mr. Verville.* *Not printed.*

127. Return to an order of the House of Commons, dated 28th March, 1906, for copies of all correspondence, plans, specifications, surveys, &c., pertaining to relief from the river Thames, say between the city of London and Lake St. Clair for the overflow of water from the said river, pertaining to canal or cut off to Lake Erie or other points. Presented 1st May, 1906.—*Mr. Clements*.....*Not printed.*

128. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of the specifications for the Victoria Memorial Museum, especially that portion thereof showing the kind, quality and dimensions of stone to be used by the contractor in the exterior walls of the same; also for a copy of all correspondence regarding stone for the said building between the government, or any department,

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minister or official, and every person or corporation, including the contractor, Mr. Goodwin, and the owners or lessees of the Read, Battery, River Phillip, and other quarries. Presented 1st May, 1906.—*Mr. Perley*..... *Not printed.*

129. Return to an order of the House of Commons, dated 9th April, 1906, for a copy of all correspondence and reports relative to the sale of the Giant's Tomb Island, or timber thereon, or to any negotiations with any person or persons for the purchase of said Island or timber thereon, or both. Presented 3rd May, 1906.—*Mr. Bennett*..... *Not printed.*

130. Return to an order of the House of Commons, dated 11th April, 1906, for a copy of a certain report or communication to the department of the interior, from C. W. Speers, an officer of that department, dated in or about the month of February, 1901, recommending that 10,000 acres of land, included in or situate near the land afterwards sold by the government to Colonel A. D. Davidson and his associates should be broken at the expense of the government, to establish the fact that grain could be produced in that district; also for a copy of the map submitted therewith; also for a copy of all reports, letters and communications to the said department, up to the 24th day of May, 1902, respecting the quality or value of the said lands, mentioned in the order in council of that date. Presented 3rd May, 1906.—*Mr. Barker*..... *Not printed.*

130*a*. Supplementary return to No. 130. Presented 11th May, 1906..... *Not printed.*

131. Return to an order of the House of Commons, dated 14th March, 1906, showing the amount of money scrip redeemed in Dominion lands, and the number of acres thus purchased from the government, (*a*) in Manitoba; (*b*) in the Northwest, the figures for each year from 1875 to 31st December, 1905, being given separately. Presented 3rd May, 1906.—*Mr. Roche (Marquette)*..... *Not printed.*

132. Return to an order of the House of Commons, dated 21st March 1906, of all the valuations made in or previously to the year 1902, of the lands sold or granted in that year to the Saskatchewan Valley Land Company. Presented 3rd May, 1906.—*Mr. Borden (Carleton)*..... *Not printed.*

133. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. The number of allotments of 240 acres of land, and acreage covered by the same, made between the 1st of July, 1896, and the 31st of December, 1905, to the half-breeds of Manitoba, giving separately the figures for each year, and for the final six months. 2. The land scrip, if any, issued during the aforesaid period to colonization companies, giving in the case of each such company the name and head office address, and also giving the face value of such scrip and the year of its issuance. 3. The number and acreage of land scrip issued during the same period, to the half-breeds of the Northwest (now Alberta and Saskatchewan), giving separately the figures for each year and for the final six months. 4. The number of acres of land scrip located within the limit of each of the thirteen Dominion land agencies of Manitoba and the Northwest, between the 1st of July, 1896, and the 31st of December, 1905, the figures of each agency each year to be given separately. 5. The number of acreage of land scrip granted prior to 1st July, 1896, to the half-breeds (*a*) in Manitoba and (*b*) of the Northwest. 6. The amount outstanding, granted but not located, on 1st July, 1896. Presented 3rd May, 1906.—*Mr. Roche (Marquette)*..... *Not printed.*

134. Return to an order of the House of Commons, dated 14th March, 1906, showing: (1) The total number of acres of land within the present limits of Manitoba, Saskatchewan and Alberta, voted by parliament to railway companies. 2. The area of said lands in respect of which the time by law specified for earning the same has elapsed. 3. The area of said lands (*a*) which has been earned, selected and patented; (*b*) which has been earned and selected, but not patented; (*c*) which has been earned but neither selected nor patented. 4. The area of land which may yet be earned by any railway company, indicating the name of the company, and the amount of subsidy possible. 5. In the case of each of the following roads, the Canadian Northern Railway Company, the Manitoba and Southeastern Railway Company, and the Qu'Appelle, Long Lake and Saskatchewan Railway Company, (*a*) the quantity of land which may yet be earned; (*b*) the quantity earned but not patented; (*c*) the extent, location (giving township and range), and boundaries of the reserved territory wherein each of the remaining selections may be made. 6. The several orders in council by virtue of which the area of selection affecting the companies mentioned in paragraph 5 were indicated, and any amendments of the same. The whole of the above information to be brought up to 1st January, 1906. Presented 3rd May, 1906.—*Mr. Ames*..... *Not printed.*

135. Return to an order of the House of Commons, dated 11th April, 1906, for a copy of any and all proposals or requests made by or on behalf of A. D. Davidson, his associates, or any of them, for

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purchase or acquisition of lands from the government or any department thereof, and particularly the proposal referred to in Sessional Paper 132*a*, 1893, page 159, being order in council, approved 24th May, 1902, and of all correspondence and other papers in any wise relating to said proposal or proposals. Also for a copy of any and all recommendations of any such proposals or dealing therewith, made by the commissioner of immigration, or general colonization agent, or either of them, referred to in said order in council, together with all correspondence and other papers in any wise relating to such recommendations. Also for a copy of any and all acceptance and acceptances, consent and consents in writing, by or on behalf of said A. D. Davidson, or associates, or any of them; of or to the terms of disposal of lands, set out in said order in council, and bearing numbers one to nine, both inclusive, or of or to any of such terms, together with all correspondence and other papers, in any wise relating to such acceptance or consent. Also for a copy of any and all agreement and agreements in writing, at any time made by the government, or any department thereof, with said A. D. Davidson, and associates, or any of them, for sale of lands, based on said order in council, approved 24th May, 1903, or on any modification thereof, together with all correspondence and other papers in any wise relating to such agreement or agreements. Presented 3rd May, 1906.—*Mr. Alcorn* ..... *Not printed.*

136. Return to an address of the House of Commons, dated 2nd April, 1906, for copies of (*a*) all plans showing proposals of any railway or other corporation, or person, or association of persons, for and with regard to expropriation of Whitefish Island, in St. Mary's River, Ontario, or of portions thereof, and of water or land covered by water, surrounding the same; (*b*) of all correspondence between this government and the government of the province of Ontario, or any department thereof, and with any other person, firm or corporation, relating thereto, and of all reports, decisions, or findings upon such applications or proposals; (*c*) of all reports of and correspondence with the International Waterways Commission, with respect to erection, maintenance or alteration of dams, water-powers, and other works or erections in St. Mary's River. Presented 3rd May, 1906.—*Mr. Boyce.*

Not printed.

137. Return to an order of the House of Commons, dated 25th April, 1906, showing imports and exports between United States and Canada for the last fiscal year, on the following agricultural products, showing Canadian duty and United States duty, also showing any of the following articles, and amount admitted free between United States and Canada: tobacco, corn, potatoes, barley, beans, oats, hay, eggs, fowls, butter, pork, beef, vegetables, apples, wood, cattle, hogs, sheep, horses, hay, canned vegetables, canned fruits, evaporated and dried apples, lard, hides and cheese. Presented 3rd May, 1906.—*Mr. Clements* ..... *Not printed.*

138. Return to an address of the House of Commons, dated 23rd April, 1906, for a copy of all orders in council, reports, correspondence, documents and papers, relating to the proposed sale, grant or disposal by the government of any lands in the province of Alberta, or in the province of Saskatchewan, to a syndicate or company in which Messieurs M. A. Walsh, E. C. Walsh, E. G. Walsh, of Clinton, Ohio; A. W. Carrol, Charles Maher, of Iowa, and J. Brown of Neepawa, Manitoba, or any or either of them are interested, or which they or any or either of them, or any person or persons on their behalf, are promoting. Presented 7th May, 1906.—*Mr. McCarthy, (Calgary).*

Not printed.

139. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of all letters, correspondence and communications between the minister of the interior or any department of the government and the superintendent under the Children's Protection Act of British Columbia, respecting the sale and slavery in British Columbia of young girls for immoral purposes; also a copy of all reports and communications from the agents of the Indian department in British Columbia, with respect to the matters aforesaid, and all replies or communications from the department to such agents. Presented 7th May, 1906,—*Mr. Borden (Carleton)*..... *Not printed.*

140. Return to an order of the House of Commons, dated 14th March, 1906, showing: 1. The number of allotments of land scrip and the total acreage covered thereby, made to half-breeds *(a)* in Manitoba, and *(b)* in the Northwest, between 1st July, 1904, and 31st December, 1905. 2. The number of land warrants, if any, and the acreage covered thereby, issued for military services within the same period. 3. The number of scrip, if any, and the acreage covered thereby, issued to the Northwest Mounted Police within the same period. 4. The number and acreage of all the above outstanding on the 31st December, 1905. All the above information being required in order to bring the information contained in Sessional Paper No. 67*d*, brought down the 13th July, 1904, up to the end of the last calendar yea Presented 7th May, 1906.—*Mr. Roche (Marquette)*..... *Not printed.*

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141. Return to an order of the House of Commons, dated 19th March, 1906, for copies of all correspondence had with the department of the interior, or the minister of that department, or any member of the government, including all statements, charges or information, made against or concerning Philip Wagner, at one time in the employ of the government. Presented 8th May, 1906.—*Mr. Foster*.....*Not printed.*

142. Return to an order of the House of Commons, dated 30th of April, 1906, for a copy of all correspondence and papers relating to any and all applications made by or on behalf of the Great Northern Railway Company for subsidies; also what subsidies were granted to that railway, by whom or through what person such subsidies were applied for, on what dates, for what portions of the railway, and of what amounts, on what terms and conditions were subsidies granted, and to what persons, firms or corporations such subsidies, or any part or parts thereof, were paid. Presented 10th May, 1906.—*Mr. Boyce*.....*Not printed.*

143. Return to an order of the House of Commons, dated 5th April, 1906, for copies of all correspondence, reports, telegrams, valuations and memoranda in possession of the government, or any member or official thereof, with reference to damages for lands expropriated for railway purposes on the line built between Montague, and Cardigan, Prince Edward Island; also names of commissioners or valuators, or both; copies of all valuations made, by whom made, giving the names and the amounts separately awarded to each; also list of names of persons who accepted valuators' awards, and also of persons whose valuations have not been accepted by the government; also list of persons who have been paid or accepted valuations. Presented 10th May, 1906.—*Mr. McLean, (Queen's).*
Not printed.

144. Return to an order of the House of Commons, dated 14th March, 1906: 1. For copies of all correspondence for the last two years on immigration between the Canadian High Commissioner, in London, England, and Mr. W. T. R. Preston, Dominion Commissioner of Immigration, at London, England. 2. For copies of all correspondence for the last two years on immigration between the said W. T. R. Preston and Mr. W. T. Griffith, Secretary, High Commissioner's office, London, England. Presented 11th May, 1906.—*Mr. Wilson (Lennox and Addington)*.....*Not printed.*

144*a*. Supplementary return to No. 144. Presented 30th May, 1906.....*Not printed.*

145. Return to an address of the Senate, dated 27th April, 1906, for a statement showing the conditions on which the Songhees Indian Reserve in Victoria has been handed over to the government of British Columbia—as to the purchase of a new reserve, the building of dwellings, church, and school house, showing also the manner in which it is intended to dispose of the money in the hands of the Dominion government to the credit of the Songhees Indians. Presented 9th May, 1906.—*Hon. Mr. Macdonald (Victoria)*.....*Not printed.*

146. Return to an order of the House of Commons, dated 9th April, 1906, for a copy of all correspondence, papers, &c., between the superintendent of the Prince Edward Island Railway, or other official, with other interested parties, relative to the acquiring of the Hodgson property on the St. Peters Road, near Charlottetown, and at the entrance of the new bridge, for the purposes of straightening the road. Presented 14th May, 1906.—*Mr. Lefurgey*.....*Not printed.*

147. Return to an order of the House of Commons, dated 30th April, 1906, for a copy of all telegrams, petitions, orders and correspondence with reference to the removal of the post office from North Lake to Blake Point, Prince Edward Island, and to the return of the office to its original location. Presented 15th May, 1906.—*Mr. McLean, (Queen's)*.....*Not printed.*

148. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of all reports regarding the Riding Mountain timber reserve, since 1st January, 1900, by any officers of the government. Presented 15th May, 1906.—*Mr. Roche (Marquette)*.....*Not printed.*

148*a*. Supplementary return to No. 148. Presented 22nd May, 1906.....*Not printed.*

149. Return to an order of the House of Commons, dated 9th April, 1906, for a copy of the contract with the Chicoutimi Pulp Company regarding the building, maintenance and operation of the piers and booms above Chicoutimi, on the Saguenay River; also a copy of the reports from the officers of the government under which it was decided to build these works, and of all correspondence relating thereto. Presented 15th May, 1906.—*Mr. Perley*.....*Not printed.*

150. Return to an order of the House of Commons, dated 14th March, 1906, showing the amounts voted and the amounts expended, under their proper heading, each year since 30th June, 1896, on Port Bruce harbour; the date of such payments, to whom the payments were made, and the amount paid

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to each person ; the amount paid for actual labour performed ; the amount paid for material not used, and when, and the amount paid for material used ; quantity and kind of material purchased, and the price, and from whom purchased ; the present actual condition of the harbour ; a copy of the estimated cost of the harbour, including dredging and breakwater ; also copies of all advertisements calling for tenders, as well as all tenders and contracts and correspondence on the subject. The names of all dredges employed since 30th June, 1896, and their owners ; also copies of all telegrams, letters, reports, petitions, documents, correspondence, investigations and communications of every description in connection with said harbour works ; also a copy of the pay-roll for each year since 30th June, 1896, the names of all foremen, superintendents and inspectors, with their length of service as such, and by whom recommended, and all correspondence in connection with their appointment, the names of all civil engineers employed on the works, and by whom recommended, and all correspondence in connection therewith ; also the name of the person or persons who paid the respective amounts at Port Bruce for material furnished and labour performed. Presented 15th May, 1906.—*Mr. Ingram*.....*Not printed.*

151. Return to an order of the House of Commons, dated 6th March, 1905, showing the names of residents of the Northwest Territories, not entitled to a second homestead, for whom the sanction of the department has been given, allowing them to purchase additional quarter sections, subject to ordinary cultivation conditions : the dates upon which such sanctions were given, the lands which have been purchased by such settlers in consequence of this authority, with the price agreed upon, and the sum paid down ; also the form in which the authority to make the sale was made known to the local agents of Dominion lands. Presented 17th May, 1906.—*Mr. Lake*.. .....*Not printed.*

152. Return to an order of the House of Commons, dated 9th May, 1906, showing the number of Indian agents in the employ of the government ; the number of Indians in the Yukon ; the number of Indian schools in the Yukon ; the number of officials of the Indian department in the employ of the government in the Yukon ; the number of Indian reserves in the Yukon ; the number of Indians in British Columbia ; the number of Indian schools in British Columbia ; the number of officials of the Indian department in the employ of the government in British Columbia ; the number of medical officials who have received remuneration of any kind out of the Indian department, and the total amount thus paid by the government in each province ; the amount of the Indian reserve land disposed of since 1896, and the price per acre received in each case ; the total amount expended in the year 1905 on the following reserves, respectively : Kettle Point, Stony Point, and Sarnia Reserve, and the population on each reserve, and the number of schools and teachers ; the amount of salary paid to the Indian agents in the Yukon and British Columbia ; the average Indian population in the reserves in each province of the Dominion ; the number of reserves in the Dominion having a population of less than each respective number given, viz.: 100, 75, 50, 30, 20, 10, 5, 3, in the year 1905 ; the total amount paid to Indian department officials of this government in each province of the Dominion. Presented 17th May, 1906.—*Mr. Armstrong*.....*Not printed.*

153. Return to an order of the House of Commons, dated 17th July, 1905, for copies of all correspondence, petitions, memorials, reports of inspectors, and all papers whatsoever, relating to the closing of Lake Manitoba from summer fishing. Presented 17th May, 1906.—*Mr Crawford*..... *Not printed.*

154. Return to address of the Senate, dated 14th March, 1906, for all correspondence between the pilot commissioners, the secretary of the board of pilot commissioners, or any of the officials of that board, at Sydney, Cape Breton, and the department of marine and fisheries, or any of the officials of the said department, showing : 1st. The amount paid into the pilots' retiring fund in each year, from 31st December, 1896, to 31st December, 1905, repectively. 2nd. The amount paid into the pilots' widows' and orphans' relief fund from 31st December, 1896, to 31st December, 1905, respectively. 3rd. The disposition made of the said funds in each year during the above-mentioned period ; the amount on hand on 31st December, 1905, the interest it bears ; where it is deposited ; the security for its safety for the benefit of the widows and the orphans of the pilots. 4th. The amount on hand in these funds, respectively, on 31st December, 1896 ; also all other correspondence, if any, bearing on this matter. Presented 17th May, 1906.—*Hon. Mr. McDonald (Cape Breton)*.....*Not printed.*

155. Return to an order of the House of Commons, dated 18th of April, 1906, showing all coal lands leased, sold or otherwise disposed of during each year from 1896 to 1905, inclusive, giving the area disposed of, the party to whom, the consideration therefor, the assignments made, if any, and the date thereof, and the name of the assignee in each case. Presented 22nd May, 1906.—*Mr. Foster*
Not printed

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156. Correspondence, &c., relative to the mining rights underlying the surface of the lands as may be required for the right of way, station grounds, &c., of the Western Division of the Grand Trunk Pacific Railway. Presented 22nd May, 1906, by Hon. F. Oliver..... *Not printed.*

157. Return to an order of the House of Commons, dated 30th April, 1906, for a copy of all correspondence, letters, papers, lease or leases, relative to the leasing of the Blood Indian Reserve, in the province of Alberta, to the McEwan Cattle Company, of Brandon, or any other person or persons. Presented 23rd May, 1906.—*Mr. Sproule* ..... *Not printed.*

158. Return to an address of the House of Commons, dated 18th April, 1906, for a copy of an order in council passed on or about the 27th July, 1900, *re* certain lands in Alberta and Arthabasca, referred to in a question asked the government by Mr. Lefurgey on 9th April, instant, together with official plan or map showing lands referred to, and all other correspondence and papers in reference thereto, between the government or any person acting on its behalf, and others, up to the present time. Presented 23rd May, 1906.—*Mr. Lefurgey*.. ..... *Not printed.*

159. Record of accidents and casualties investigated by the Board of Railway Commissioners, for the year ending 30th June, 1905. Presented 28th May, 1906, by Hon. W. S. Fielding.....*Not printed.*

160. Return to an order of the House of Commons, dated 9th May, 1906, showing the freight rates in force last year on the Prince Edward Island Railway, and the tariff in force on 1st April, 1906, for local traffic ; also a statement of the proportion of through freight rates on the Intercolonial Railway carloads of grain for export from Montreal to St. John, New Brunswick, Halifax, Nova Scotia, and Sydney, Cape Breton, giving the several distances and the through freight rates charged on grain in carloads from Tignish, Prince Edward Island, to St. John, New Brunswick, Halifax, Nova Scotia, and Sydney, Cape Breton, by Prince Edward Island Railway, government winter boats and Intercolonial Railway, showing the several distances. Presented 29th May, 1906.—*Mr. Lefurgey.*
Not printed.

161. Report of the commissioners appointed to hold an investigation and report upon the accident which occurred on the 5th April, 1906, by the collapse of part of the tower on the west block extension of the departmental buildings. Presented 29th May, 1906, by Hon. C. S. Hyman.
Printed for both distribution and sessional papers.

161*a*. The evidence taken before the commissioners appointed to hold an investigation and report upon the accident which occurred on the 5th April, 1906, by the collapse of part of the tower on the west block extension of the departmental buildings. Presented 19th June, 1906, by Hon. C. S. Hyman.
Not printed.

161*b*. Correspondence in relation to the west block extension and the collapse of the tower. Presented 22nd June, 1906, by Hon. C. S. Hyman..... *Not printed.*

162. Return to an order of the House of Commons, dated 9th May, 1906, showing the total number of land patents issued, together with the acreage covered thereby, in and for the territory included within the limits of the present provinces of Manitoba, Saskatchewan and Alberta, between the 1st of July, 1901, and the 31st of December, 1905, under each of the following forms of grant : (*a*) commutation grants, (*b*) homesteads, (*c*) Manitoba Act grants, (*d*) military bounty grants, (*e*) Northwest half-breed grants, (*f*) parish sales, (*g*) quit claim special grants, (*h*) railways, (*i*) sales of mining, farming, ranching, &c., (*j*) school land sales, (*k*) special grants, (*l*) and all others. Presented 29th May, 1906.—*Mr. Ames*..... *Not printed.*

163. Return to an order of the House of Commons, dated 23rd April, 1906, showing what information is in possession of the department of the interior, or any department or member of the government, regarding alleged irregular or improper dealings, acts, charges, payments, or accounts of any officer, agent or other person in Great Britain or Ireland, or in Europe, in connection with immigration to Canada ; what period is covered thereby ; also what communications, if any, upon or in relation to such matters have been had from or with the High Commissioner for Canada, the commissioner of immigration or others, in writing or otherwise ; also a copy of all correspondence, reports and papers, if any, relating to such matters. Presented 29th May, 1906.—*Mr. Barker*..... *Not printed.*

164. Return to an address of the Senate, dated 15th May, 1906, calling for a statement showing : 1st. The amount paid for the railway known as the Canada Eastern in New Brunswick, and the name of the person or persons to whom the purchase money was paid. 2nd. The amount of money expended on said railway since its purchase by the government to the 1st of April, 1906, on buildings, repairs,

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grading, culverts, bridges, ties, rails, and all other expenditures incurred in the improvement of said railway. 3rd. The total amount earned and received from the passengers, and for freights, separately, to the 1st of April, 1906. 4th. The total expenditure for operating said road, as a branch of the Intercolonial, from the date of purchase to the 1st of April, 1906. Presented 29th May, 1906.—*Hon. Sir Mackenzie Bowell*.....*Not printed.*

165. Return to an address of the Senate, dated 8th May, 1906, for a statement showing: 1. What amount has been paid out annually during the last five years for salaries and expenses of the staff chargeable with the inspection duties of the life insurance branch of the finance department. 2. Did such staff perform any duties other than those pertaining to inspection. 3. Names of the officers of such staff. 4. Salaries paid each such officer. 5. Amounts collected annually from all life insurance companies doing business in Canada during the last five years for inspection charges or maintenance charges of such branch, or for such other charges incident thereto. 6. On what basis have such charges been made and collected. 7. The names of all companies and amounts paid each year by such companies. Presented 29th May, 1906.—*Hon. Mr. Lougheed*.....*Not printed.*

166. Return to an order of the House of Commons, dated 20th February, 1905, showing the number of miles of land in the Northwest Territories surveyed in block outlines, and the cost per mile; the number of miles of township outlines, and the cost per mile; the number of acres subdivided, and the cost per acre; the proportion of open prairie to the whole of the land surveyed; the contract survey rate per mile of section line in open prairie; the rate of pay of surveyors employed by the day, for the years 1880, 1881, 1882, 1883, 1900, 1901, 1902, 1903; the average for the first four years, and the average for the latter four years. Presented 13th June, 1906.—*Mr. Roche (Marquette).*
Not printed.

167. Return to an address of the Senate, dated 16th May, 1906, for copies of the North Sydney Harbour Commissioners' Report for the calendar years 1897, 1899, 1901 and 1905, showing collections and disbursements of the said harbour commissioners during these years; also correspondence, if any, respecting purchase of land for harbour commissioners' purposes, with plans of the said land and harbour. Presented 29th May, 1906.—*Hon. Mr. McDonald*.....*Not printed.*

168. Return to an address of the Senate, dated 8th May, 1906, for a statement relating to the Mutual Life Insurance Company of New York, showing: 1. The amount of life insurance in force in the Dominion on 31st December, 1905. 2. The amount of security deposited with the Dominion government. 3. The nature of the security. 4. If in gold, how much. 5. If in bonds, how much. 6. Who are the issuers of the bonds. 7. Are the bonds given in security taken at par or face value, or at the supposed market value. 8. How is the market value ascertained. 9. What means are taken to know if the makers or issuers of bonds taken as security are solvent from year to year. 10. In the event of the value of bonds falling below that at which they are taken as security, how would the deficiency in the security necessary to be held be made up. 11. Has the security deposited by the Mutual Life Insurance Company of New York fallen in value at any time below that necessary to be deposited according to law. Presented 29th May, 1906.—*Mr. Macdonald (Victoria)*...*Not printed.*

169. Papers relating to chapter 16, 4 Edward VII, intituled: 'An Act respecting an arbitration between His Majesty and the Grand Trunk Company of Canada.' Presented 29th May, 1906, by the Hon. R. W. Scott.....*Not printed.*

170. A copy of a Report of the Committee of the Honourable the Privy Council, approved by His Excellency the Governor General on the 14th March, 1906, relating to the extension of the contract with the American Bank Note Company for a further period of five years; and correspondence relating thereto. Presented 30th May, 1906, by Hon. W. S. Fielding.....*Not printed.*

171. Return to an order of the House of Commons, dated 14th March, 1906, showing the amounts voted, and the amounts expended, under their proper headings, each year since 30th June, 1896, on Port Stanley harbour; the date of such payments, to whom payments were made, and the amount paid to each person; the amount paid for actual labour performed; the amount paid for material not used; the quantity and kind of material purchased, with the price, and from whom purchased; the present actual condition of the harbour. A copy of the estimated cost of the harbour, the statement to include dredging and the breakwater; also copies of all advertisements calling for tenders, as well as all tenders and contracts and correspondence on the subject; the names of all dredges employed on the work since 30th June, 1896, and their owners; also copies of all telegrams, letters, reports, petitions, documents, correspondence, investigations and communications of every description in

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connection with said harbour works; also a copy of the pay-roll for each year since 30th June, 1896; the names of all foremen, superintendents and inspectors, their length of service as such, and by whom recommended, giving all correspondence in connection with their appointment; and if dismissed or resigned, state reason for said dismissal or resignation; the names of all civil engineers employed on the works, and by whom recommended, and all correspondence in connection therewith; also the name of the person or persons who paid the respective amounts at Port Stanley for material furnished and labour performed. Presented 31st May, 1906.—*Mr. Ingram*.... *Not printed.*

172. Return to an order of the House of Commons, dated 9th May, 1906, for a copy of the instructions issued to each grade of civil engineers on the survey of the Montreal, Ottawa and Georgian Bay Ship Canal; also the names of each of the engineers engaged in the several grades, respectively, including transit men, levellers, rod men, and chain men, and the salaries of each. Presented 31st May, 1906.—*Mr. Taylor*..... *Not printed.*

173. Return to an order of the House of Commons, dated 30th April, 1906, for a copy of all papers, vouchers and statements in connection with the expenditure of $1,438.54 on Miminegash harbour, as per Auditor General's Report, 1905, giving names and amounts paid severally for labourers, names, prices and amounts for supplies of stone, brick, poles, plank, and small payments, &c. Presented 31st May, 1906.—*Mr. Lefurgey*..... *Not printed.*

174. Copy of an agreement of Charles M. Hatfield to increase the natural rainfall in any locality in the Yukon Territory. Presented 31st May, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

175. Return to an order of the House of Commons, dated 26th March, 1906, for copies of all correspondence pertaining to complaints received by the government protesting against quarantine from hog plague, in Kent County, Ontario. Presented 4th June, 1906.—*Mr. Clements*..... *Not printed.*

176. Return to an order of the House of Commons, dated 25th April, 1906, for a copy of all reports, evidence, correspondence, documents and papers relating to charges against any of the customs officials at Emerson, in the province of Manitoba, during the past two years. Presented 4th June, 1906.—*Mr. Roche (Marquette)*..... *Not printed.*

177. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of all applications from C. F. Caldwell for himself, or by C. F. Caldwell on behalf of any clients, together with their names, or by any other person or persons, together with copies of all correspondence or other papers in connection with permission to purchase coal mining lands in the province of Alberta. Presented 4th June, 1906.—*Mr. Reid (Grenville)*..... *Not printed.*

178. Return to an order of the House of Commons, dated 23rd April, 1906, for a copy of all correspondence, memoranda, reports and telegrams in possession of the government or any member or official thereof, in reference to the construction of a new steamer for the winter navigation of the Straits of Northumberland, including Mr. Duguid's report or recommendations, and those of others co-operating with him, and the expenses connected therewith, and to whom paid. Presented 5th June, 1906. —*Mr Martin (Queen's)*..... *Not printed.*

179. Return to an order of the House of Commons, dated 23rd April, 1906, for a copy of the plans and specifications of the new steamer now being constructed in England. Presented 5th June, 1906. —*Mr. McLean (Queen's)*..... *Not printed.*

180. Return to an address of the Senate, dated 31st May, 1906, for a copy of the certificate obtained by Commander Spain in the month of February, 1903. Presented 1st June, 1906.—*Hon. Mr. Landry.*
Not printed.

181. Return to an order of the House of Commons, dated 9th May, 1906, for a statement showing the wages paid in different departments of the Prince Edward Island Railway, in the same manner as published in the Auditor's General's Report with reference to the Intercolonial Railway. Presented 13th June, 1906.—*Mr. Lefurgey*..... *Not printed.*

182. Return to an order of the House of Commons, dated 14th May, 1906, for a copy of the memorial received from the Dominion Marine Association, calling the attention of the Government to delays consequent upon the carrying out of the contract with M. P. Davis or the St. Lawrence Power Company for the hauling of vessels by electrical power in and out of the locks of the Cornwall Canal. Presented 13th June, 1906.—*Mr. Ames*.... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

183. Return to an order of the House of Commons, dated 14th March, 1906, showing the amounts voted and the amounts expended, under their proper headings, each year since 30th June, 1896, on Port Burwell harbour; the date of such payments; to whom the payments were made, and the amount paid to each person; the amount paid for actual labour performed; the amount paid for material not used, and when; the amount paid for material used; the quantity and kind of material purchased, and the price, and from whom purchased; the present actual condition of the harbour. A copy of the estimated cost of the harbour, and a statement showing how much it will cost to finish said harbour; the above statement to include breakwater and dredging. Also copies of all advertisements calling for tenders, as well as all tenders and contracts, and correspondence on the subject; the names of all dredges employed on the works since 30th June, 1906, and their owners. And copies of all telegrams, letters, reports, petitions, documents, correspondence and communications of every description in connection with the said harbour works. Also a copy of the pay-roll for each year since 30th June, 1906; the names of all foremen, superintendents and inspectors; their length of service as such, and by whom recommended; with all correspondence in connection with their appointment; and if dismissed or resigned, the reason for said dismissal or resignation; the names of all civil engineers who are or have been employed on the works, and by whom recommended; the said return to include Mr. John H. Teall, resident engineer, the date of appointment, dismissal or resignation, as the case may be, and the reason for same; and all correspondence, petitions, telegrams, letters and communications connected therewith. Presented 15th June, 1906.—*Mr. Ingram.*
Not printed.

184. The King's regulations and orders for the militia of Canada, 1904, 1905 and 1906. Presented 19th June, 1906, by Sir Frederick Borden..... *Not printed.*

184*a*. Regulations respecting pay, allowances, &c., to the Canadian militia. Presented 19th June, 1906, by Sir Frederick Borden..... *Not printed.*

185. Return to an order of the House of Commons, dated 9th May, 1906, showing: In respect of any or all ties purchased by the department of railways and canals during the years 1903-4 and 1904-5, from each of the fallowing: D. J. and J. D. Buckley, of Rogersville; John Mahony, of Rogersville; and Jude F. Gallant, of Rogersville; (*a*) the classes and quantities of ties; (*b*) prices paid; (*c*) the places of delivery; (*d*) the number rejected; (*e*) the name of the inspectors who represented the government; (*f*) the quantity and value of the ties in store at Rogersville at the time of stock taking for the fiscal year 1904-5; (*g*) a copy of all correspondence, orders or papers of any nature in the possession of the department of railways and canals, or any official thereof, relating to the ordering, purchasing, receiving, checking, inspecting, or refusing of any of said ties. Presented 19th June, 1906.—*Mr. Ames*..... *Not printed.*

186. Return to an order of the House of Commons, dated 28th May, 1906, showing the number of mail contracts in Elgin County, giving location, number of miles, names of couriers, and prices paid; also date of commencement, date of expiration, and names of bondsmen; also particulars of tenders, if any were called for; the name of each preceding contractor, with the name of courier, and the price paid. Presented 19th June, 1906.—*Mr. Ingram*..... *Not printed.*

187. Return to an order of the House of Commons, dated 14th May, 1906, showing: (1) What aid has been given by the Dominion government to the governments of the various provinces of the Dominion since confederation, for or towards the building of provincial railways, either by original aid or by ultimately bearing a share of the cost of such undertakings. (2) What railway subsidies or aids originally granted or agreed to be granted, by the provinces respectively, have been ultimately paid or borne by the Dominion in aid of such railways during such period. (3) What moneys have been paid by the Dominion to the several provinces, respectively, during each such period for or in respect of such railways or the stock or bonds thereof, respectively, purchased, acquired or taken over in whole or in part by the Dominion. Presented 21st June, 1906.—*Mr. Macdonell.*
Printed for sessional papers.

188. Return to an order of the House of Commons, dated 14th May, 1906, showing what lands have been selected by the Canadian Northern Railway Company, in accordance with the order in council of 10th August, 1903, in townships 15 to 20, both included, in ranges 9, 10, 11 and 12, west of 1st meridian. Also any lands reserved for selection by the Canadian Northern Railway Company, in the territory mentioned above, that may have reverted to the government by reason of the said company not exercising its right of selection thereto before 31st December, 1905, in accordance with the provisions of order in council of the 10th August, 1903. Presented 22nd June, 1906.—*Mr. Roche (Marquette)* ..... *Not printed.*

CONTENTS OF VOLUME 14—*Continued.*

188*a*. Return to an order of the House of Commons, dated 9th May, 1906, showing all lands selected by the Canadian Northern Railway Company from that portion of the lands reserved for selection by the said company, in townships 15 to 20, both included, in ranges 9, 10, 11 and 12, west of 1st meridian. Also a return of all lands patented to the nominees of the Canadian Northern Railway Company in the territory above-mentioned, and the names of the patentees, since 29th June, 1905. Presented 22nd June, 1906.—*Mr. Roche (Marquette)*.....*Not printed.*

189. Return to an order of the House of Commons, dated 21st May, 1906, for a copy of all petitions and papers of every kind concerning the claims of certain retired servants of the Hudson's Bay Company, under a deed of sale by the said company to Lord Selkirk in 1811. Presented 22nd June, 1906.—*Mr. McCraney*.....*Not printed,*

189*a*. Return to an order of the House of Commons, dated 17th July, 1905, for copies of all correspondence, documents, and memorials between the government or any member thereof, and the Rev. James Taylor, or any other person, on behalf of the retired servants of the Hudson's Bay Company, in reference to their claim to a portion of the estate of the late Lord Selkirk. Presented 27th June, 1906.—*Mr. Lamont*.....*Not printed.*

190. Return in part to an address of the Senate, dated 27th April, 1906, for a statement of all accidents that occurred on the Intercolonial Railway during the years 1897, 1898, 1899, 1900, 1901, 1902, 1903 1904 and 1905, specifying each accident, whether by collision, derailing, fire or otherwise, and the amount of damages of each such accident, mentioning the localities where such accidents occurred. Also the amount of losses each year, by theft or otherwise, of goods or freight, in transit, on the Intercolonial Railway, for each year as above. Presented 22nd June, 1906—*Hon. Mr. McDonald (Cape Breton)*.....*Not printed.*

191. Return showing : 1. What sums have been paid Messrs. Ahearn & Soper of Ottawa, in each year since 1896. 2. For what supplies or services were these payments made. Presented 25th June, 1906, by Hon. C. S. Hyman ..... *Not printed.*

192. Return showing the total sums that have been paid by the government to the Manitoba *Free Press* and *Der Nordwester* Publishing Companies, for all services, for each of the financial years commencing 1st July, 1900, and ending 30th June, 1905. Presented 25th June, 1906, by Sir Wilfrid Laurier. *Not printed.*

193. Return to an order of the House of Commons, dated 9th May, 1906, for a copy of all correspondence, inquiries with officials, engineers, solicitors, contractors and others, bearing upon the accident to the wharf at Sorel, together with all documents in connection with the same. Presented 25th June, 1906. —*Mr. Blain*.....*Not printed.*

194. Return to an address of the Senate, dated 19th June, 1906, calling for a statement since 1st March, 1904, showing : 1. Which are, more particularly at Quebec, Montreal and Ottawa, the newspapers, or the printing companies or firms, which publish advertisements or printed documents on account of the commissioners of the Transcontinental Railway. 2. How much has each of these newspapers or of these companies or firms received, and what is the date of each payment. 3. For what kind of services, advertisements, printing or puffs, and how much for each kind, have these newspapers or these companies or firms been paid. Presented 25th June, 1906.—*Hon. Mr. Landry. Not printed.*

195. Return to an order of the House of Commons, dated 23rd April, 1906, for a copy of all letters, correspondence, papers, reports and accounts relating to the construction of a fish ladder at Cowie's Dam, lower pulp mill, Milton, Queen's County, N.S, and of the accounts showing the cost of construction of the said ladder, the amount paid for labour and material, and to whom paid. Presented 30th June, 1906.—*Mr Crocket*.....*Not printed.*

196. Return to an order of the House of Commons, dated 30th April, 1906, showing, by townships, all Indian lands sold or disposed of within the boundaries of the present electoral district of East and West Algoma, during the years 1896 to 1905, both inclusive, with the names and addresses of purchasers or lessees, and the prices paid or agreed to be paid, for such lands, by way of rental or purchase money ; also showing, by townships, when the said purchases were completed, or when the final payments were made and the total amount paid for such lands ; also showing, by townships, what agreements for sale are in default, and for what period the same have been in default ; also showing what agreements for sale or lease, by townships, have been cancelled for non-payment of purchase money or non-performance of conditions. Presented 3rd July, 1906.—*Mr. Boyce.* *Not printed.*

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196*a*. Return to an order of the House of Commons, dated 30th April, 1906, for a copy of all the returns and reports made by Indian agents or other officials in the employment of the government, having charge of Indian lands in the territory now included within the boundaries of the present electoral districts of East and West Algoma, showing all sales, transactions and cancellations of lands in such territory, from the 1st July, 1896, to the 1st April, 1906. Presented 3rd July, 1906.—*Mr. Boyce.*
Not printed.

197. Return to an order of the House of Commons, dated 28th May, 1906, for a copy all correspondence between Joseph Rirm and the government in reference to the surface right for coal on the northeast ¼ of section 26, township 1, range 6, west of the 2nd meridian. Also a copy of all letters, papers and telegrams, from any other party or parties in reference to the same. Presented 5th July, 1906.—*Mr. Roche (Marquette)*.....*Not printed.*

198. Return to an order of the House of Commons, dated 14th March, 1906, for copies of all letters, telegrams, reports or other communications which, between the 1st of July, 1904, and the 31st December, 1905, passed between the Minister of the Interior, or any official of his department, on the one hand, and (*a*) the Canadian Northern Railway Company; (*b*) the Manitoba and Southeastern Railway Company; (*c*) the Qu'Appelle, Long Lake and Saskatchewan Railway Company, or any company to whom any of said companies shall have transferred its land rights, in regard to the area in which any of said companies were to be permitted to select land due by way of subsidy. Presented 5th July, 1906.—*Mr. Ames*.....*Not printed.*

199. Return to an order of the House of Commons, dated 21st March, 1906, showing: 1. The description of all lands in Manitoba and the Northwest, formerly reserved for timber or hay purposes, to which homestead entries have been granted since 1st January, 1905. 2. The date of decisions to open such reservations for settlement. 3. The names of applicants, in order of application, on the books of the various agencies and sub-agencies, for each quarter section, at the date when the entry was granted. Presented 5th July, 1906.—*Mr. Lake*.....*Not printed.*

200. Return to an order to the House of Commons, dated 21st March, 1906, showing the number of applications for inspection received at the several land agencies in Manitoba and the Northwest for each month of the years 1904 and 1905, from homesteaders desiring to secure their patents. 2. The number of inspections made monthly from each agency. 3. The number of applications for inspection on file 1st January, 1906, at each agency. Presented 5th July, 1906.—*Mr. Lake*...*Not printed.*

201. Return to an address of the House of Commons, dated 2nd April, 1906, for copies of all correspondence between the pilotage commissioners, the secretary of the Board of Pilot Commissioners, or any of the officials of that board, at Sidney, Cape Breton, and the department of marine and fisheries, or any of the officials of the said department, and all orders in council, regulations, memoranda, books, documents and papers, showing; (1) the amount paid into the pilots' retiring fund in each year from the 31st December, 1896, to 31st December, 1905, respectively; (2) the amount paid into the pilots' widows' and orphans' relief fund from 31st December, 1896, to 31st December, 1905, respectively; (3) the disposition made of the said funds in each year during the above-mentioned period; the amount on hand on the 31st December, 1905; the interest it bears; where it is deposited; the security for its safety for the benefit of the widows and orphans of the pilots; (4) the amount on hand in these funds, respectively, on 31st December, 1896. Also all other correspondence, if any, bearing on this matter. Presented 5th July, 1906.—*Mr. Boyce*.....*Not printed.*

202. Return to an order of the House of Commons, dated 14th March, 1906, showing (*a*) how many wrecks occurred in the river and gulf of St. Lawrence during the season of 1905; (*b*) the names, tonnage and character of the vessels so wrecked; (*c*) whether such wreck resulted in a total loss of the ship and cargo, or either, in any and what cases; (*d*) to what causes each of said wrecks were attributable; (*e*) whether any inquiry was held in any and what cases. Also for a copy of all reports, evidence, correspondence, documents and papers, relating to or connected with the said wrecks, the inquiries concerning the same, and the loss thereby occasioned. Presented 5th July, 1906.—*Mr. Borden (Carleton)*.....*Not printed.*

202*a*. Return to an address of the Senate, dated 15th March, 1906, for a copy of all the instructions given, of all the evidence heard, of the judgment rendered, and of all communications exchanged on the subject of the wreck of the steamer *Bavarian* last autumn upon the Wye rocks, and of the inquiry held thereinto, as well as of the correspondence exchanged between the department of marine and fisheries and any person whomsoever regarding the choice of the judge holding the inquiry and of his assessors. Presented 23rd April, 1906.—*Hon. Mr. Landry*.....*Not printed.*

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203. Return to an order of the House of Commons, dated 28th May, 1906, for copies of all correspondence between any minister of any department and the company of the port of Chicoutimi or any other company or person regarding the dredging of the Saguenay down to the present year. Presented 7th July, 1906.—*Mr. Girard*.....*Not printed.*

204. Return to an address of the House of Commons, dated 23rd April, 1906, for a copy of all orders in council, reports, letters, telegrams, communications, documents and papers of every kind, relating to the establishment, acquisition, construction, enlargement and maintenance of a hospital for trachoma patients at or near Halifax, N.S., including a statement of all sums of money expended in connection therewith, whether for establishment, acquisition, construction, enlargement or maintenance ; also a statement of the person or persons to whom such moneys were paid, the amount paid in each instance, as well as the date of payment, and generally all particulars concerning the said hospital from the time when it was first established. Presented 7th July, 1906.—*Mr. Wilson, (Lennox and Addington)*.....*Not printed.*

205. Return to an order of the House of Commons, dated 14th March, 1906, showing in the case of every homestead against which, during the year 1904 and 1905 a report of non-compliance with the law, or a demand for cancellation has been received by the Dominion land office or offices : giving (*a*) the location of said quarter section range, township and meridian ; (*b*) the name and address of the party by whom the original entry was made ; (*c*) the name and address of the party or parties (if there have been several) who endeavoured to lodge cancellations ; (*d*) the reason alleged by complaints why cancellation of entry should be allowed ; (*e*) whether warning of threatened cancellation was served upon the alleged delinquent ; (*f*) the action taken by the department in each case. Presented 9th July, 1906.—*Mr. Ames*.....*Not printed.*

206. Return to an order of the House of Commons, dated 30th April, 1906, showing in detail for each year from 1891 to 1895, inclusive : 1. A statement of all goods supplied to Mr. Speaker's apartments, and the amount paid therefor. 2. An inventory of all goods in the apartments taken on the vacation of the office of Speaker, by Mr. Bain, Mr. Brodeur and Mr. Belcourt and any reports of the Clerk of the House, the Serjeant-at-Arms, or other officer, with reference to the inventories, the goods supplied, their condition and the care and disposition of the same. 3. A copy of all correspondence had by the Speaker, any member of the Internal Economy Commission, the Clerk of the House, the Auditor General, or any of the other officers of the House of Commons, in reference to the purchase, payment, checking, distribution, replenishing, disposal or care of the same. 4. A copy of all resolutions passed by the Internal Economy Commission in reference to the above matters. Presented 9th July, 1906.—*Mr. Lancaster*.....*Not printed.*

207. Return to an address of the House of Commons, dated 23rd April, 1906, for copies of all correspondence since 1896 between the Government of Canada, or any member thereof, and the German or British Governments, or any person or persons officially or otherwise representing those governments ; and copies of all documents and papers in possession of the government, respecting the tariffs of Germany and Canada, in relation to each other. Presented 11th July, 1906.—*Mr. Armstrong*.....*Not printed.*

CANADA

REPORT

OF THE

MINISTER OF PUBLIC WORKS

ON THE

WORKS UNDER HIS CONTROL

FOR THE FISCAL YEAR ENDED JUNE 30

1905

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 36 SECTION 37, OF THE REVISED STATUTES OF CANADA.

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

[No. 19 —1906].

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, G.C.M.G., &c., &c., Governor General of Canada.

My Lord,

I have the honour to lay before Your Excellency the Report of the Department of Public Works of Canada, for the Fiscal Year ended June 30, 1905.

I have the honour to be,
My Lord,
Your Excellency's most obedient servant,

CHAS. S. HYMAN,
Minister of Public Works.

Ottawa, March, 1905.

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Guysboro, N.S., public building		7, 30					
H							
Habitant River		14					
Haileybury, Ont.		23		186, 260			
Halliday's wharf, P.E.I.		16		81			
Hall's harbour, N.S.		14		32			
Halifax, N.S., public buildings		7, 30	3				
" graving dock		14					
Hamilton, Ont., public buildings		10, 32					
" harbour		23		187, 260			
Hampton, N.S.		14		33			
Hantsport, N.S.		14		34			
Harbours and rivers, generally	4	14, 25					12
Hardy, J. E., gratuity		28					
Harrigan's Cove, N.S		14		25			
Hawkesbury, Ont		23		260			
" public building		10	17				
Heating public buildings		30					
Hilton, Ont.		23		187			
Hochelaga, P.Q., public building		8, 31					
Holland River, Ont		23		187			
Honora, Ont.		23		187			
Hopetown Beach, P.Q		20					
Hopewell Cape, N.B.		17		100			
Hopewell Hill, N.B.		17		101			
Hull, P.Q., public building		8, 31					
" wharf		19					
Hunker Creek, Y.T., building			38				
Huntingdon, B.C., custom house		13					
Huntsville, Ont		23		188			

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Indian Head, N.W.T., experimental farm		12, 35					
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Indian River, Ont.		23		260			
Ingersoll, Ont., public building		10, 32					
Iona, N.S.		14		34			
Innisfield, N.W.T., immigration building		35					
International Waterways Commission	9	28					
Irish Cove, N.S.		14		35			
Iroquois River, N.B.		18		113			
Island Point, N.S.		14					
Island of Orleans, P.Q., telegraph					11		
Isle aux Coudres, P.Q., telegraph		27					
" harbour		19		136			
Isle aux Grues, P.Q.		27		136			
Isle aux Noix, P.Q.		19		254			
Isle Bizard, P.Q.		19		137			
Isle du Pas, P.Q.				254			
Isle Perrot, P.Q.		19		137			
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Janvrins Island, N.S.		15		36			
Jersey, N.S.				36			
Jersey Cove, P.Q.		20					
Joggins, N.S.				36			
Joliette, P.Q., public building		8, 31					
K							
Kaministiquia River, Ont.				260			
Kamloops, B.C., public buildings		13, 35	33				
Kamloops-Nicola, B.C., telegraph		28			14, 55		
Kamouraska, P.Q.		19		138			
Kelley's Cove, N.S.		15		51			
Kempt Head, N.S., telegraph					7		
Kennedy Lake, B.C.		25		206			
Kenora, Ont., post office, &c		10, 32					
Kentville, N.S., public building		7, 30					
Kincardine, Ont.		23		188, 261			
Kingsport, N.S.		15					
Kingston, Ont., harbour		23		261			
" " graving dock		23		307		7, 15	
" " public building		10, 32	18				
Kluhane, Y.T., building			38				
Knight's Point, P.E.I.		17					
Knowlton's Landing, P.Q.		19		138			
Kootenay River, B.C.		25		211			
L							
Lac à Beaulieu, P.Q.				138			
Lachine, P.Q., public building		8, 31					
Lachute, P.Q., post office, &c		8					
Lacolle, P.Q.				254			
Lacombe, N.W.T., immigration building		35					
Lac Labelle, P.Q.		19		139			
Ladysmith, B.C.		25		211			
Lake Dauphin, Man.		24		299			
Lake Francis, "		24		205			
Lake Manitoba "		24		299			
Lake Megantic, P.Q.		19		139			
Lake Nominingue, P.Q.		19		149			
Lakeport, Ont.		22		188			
Lake Simcoe and Couchiching, Ont.		23					
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L'Anse à Ilot, "		19		119			
L'Anse aux Foins, P.Q		21		170			
Lanoraie, P.Q		19		139			
Laprairie, P.Q		19		140			
" " public building		8, 31					
L'Ardoise, N.S		15		37			
Larry's River, N.S		15		37			
L'Assomption, P.Q., public building		8, 31					
" " dredging				254			
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Lavaltrie, P.Q		19					
Lawlor's Island, N.S., quarantine station			4				
Leamington, Ont		23		188			
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Leduc, N.W.T., building		35					
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Lethbridge, N.W.T., public buildings		12, 35					
" " bridge		27					
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Leturmy A., a gratuity		28					
Levis, P.Q., graving dock		19		307		6, 14	
" public buildings		8	9				
Lewes-Yukon rivers		25					
Lighting, public buildings		30					
Lindsay, Ont, public buildings		10, 32					
Lingan, N.S		15		39			
Lion's Head, Ont		23		189			
L'Ile d'Alma, P.Q		19					
Lismore, N.S				8			
Litchfield, N.S		15		39			
Little Bear Creek, Ont		23					
Little Brock, N.S		15		39			
Little Current, Ont		23		261			
Little Harbour, N.S		15		40			
Little Judique, N.S		15		40			
Little Narrows, N.S				40			
Little Pabos, P.Q		20					
Little Salmon River, N.B		17		102			
Little Tobique River, N.B				112			
Liverpool, N.S., harbour		15		217			
" public buildings		7, 30					
Livingston Cove, N.S		15		46			
Livingston Creek, Y.T., public buildings			39				
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Lockeport, N.S		15		38, 217			
Loggieville, N.B		17		102			
Loisseau, Jos., gratuity		28					
Long Point, N.S		15		38	8		
Longueuil, P.Q., public buildings		8	10				
London, Ont., public buildings		10, 32					
Lord's Cove, N.B		17	103				
L'Orignal, Ont		23		189			
Lotbinière, P.Q		20		143			
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McPherson's Cove, P.E.I		16		85			
Mabou, N.S		15		217			
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Macleod, N.W.T., public buildings		12, 35					
" bridge		27					
Maces Bay, N.B		17					
Madawaska River, slide		26		310			
Magdalen Islands, P.Q		20					
" " telegraph		27			8, 25		
Magog, P.Q		20		144			
Maguasha, P.Q		20		144			
Main-à-Dieu, N.S		15		41			
Main River, N.B				112			
Malagash, N.S		15		12			
Malagawatch, N.S		15		42			
Malbaie, P.Q		20		147			
Malignant Cove, N.S		15		42			
Mallorytown, Ont		23		190			
Manitoba, dredging				299			
" harbours and rivers		24		204			
" public buildings		11, 34	30				
Manitou Rapids, Man				206			
Maquapit and French Lake, N.B		17		221			
Marconi, wireless telegraphy					11		
Margaree Harbour, N.S		15		43			
" Island, N.S		15					
Margaretville, N.S		15		44			
Maria, P.Q		20		144			
Maria street bridge, Ottawa		27					
Maritime Provinces, dredging				216, 224			
" public buildings		8					
" telegraphs					7		
Marshall's Cove, N.S		16		63			
Marysville, N.B., public building		8, 30					
Masson, P.Q		20		145			
Matane, P.Q		20		145			
Matchedash Bay, Ont		23					
Meaford, Ont		23		191			
Meat Cove, N.S., telegraphs					27		
Medicine Hat, N.W.T., public building		12, 35					
Melbourne, N.S		15		46			
Meteghan Cove, N.S		15		46			
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Middle East Pubnico, N.S		15		49			
Middleton, N.S., armoury		7, 30					
Middle River, N.S		15		49			
Midland, Ont		23		141, 261			
Midway, B.C., cattle quarantine		13					
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Mille Vaches, P.Q		20		145			
Miminigash, P.E.I		16		84			
Mink River, P.E.I		16		84			
Minnedosa, Man., lands office		34					
Miramichi River N.B		17					
Miscou, N.B		17		103			
Mistook, P.Q		20		146			
Mitchell's Bay, Ont		23					
Moncton, N.B., public building		8, 30					
Monks Head, N.S		15		49			
Montague, P.E.I., public building		7, 30					
Montague River, P.E.I		16		220			
Mont Louis, P.Q		20		146			
Montmagny, P.Q., public building		8					
" " wharf		20					
Montmorency Falls, P.Q		20		160			
Montreal, P.Q., public building		8, 31	10				
" " harbour		20		146			

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Morden, N.S.		15		50			
Moore, L., gratuity		28					
Morrel, P.E.I.		16		220			
Morrison's Point, N.S.		15					
Moosejaw, N.W.T., public buildings		12, 35	32				
Moosomin, N.W.T.		12, 35					
Mossy River, Man.		24		299			
Mount Lehman, B.C.		25		212			
Mud Cove, N.B.		17		103			
Murray Bay, P.Q.		20		147, 255	31		
Murray Harbour, P.E.I.		16		81			
Musquodoboit, N.S.		15					
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Nanaimo, B.C. harbour			302				
" public building		13, 36	34				
Nanaimo-Comox, telegraph		28					
Napanee, Ont., public building		10, 32					
Nappan, N.S., experimental farm		7					
National Art Gallery, Ottawa		10, 33					23
Neebing River, Ont.				262			
Negro Point, N.B.		18		104			
Neguac Harbour, N.B.		17					
Neil's Harbour, N.S.		15		50			
Nelson, B.C., public buildings		13, 36					
New Brunswick, dredging				221			
" harbours		17		89			
" public buildings		7, 30	5				
" telegraphs		27			29		
New Carlisle, P.Q.		20		147			
New Campbelltown (Keely's Cove), N.S.		15		51			
Newcastle, N.B., public building		8, 30					
Newcastle District, slides		26		316			
Newcastle, Ont.		23		191			
Newellton, N.S.		15		51			
Newfoundland, telegraph					7, 23		
New Glasgow, N.S., public building		7, 30					
New Liskeard, Ont.		23		262			
New London, P.E.I.		16		85			
Newport, P.Q.		20		147			
Newport Landing, N.S.		15		52			
New Richmond, P.Q.		20		148			
New Westminster, B.C., public buildings		13, 36	34				
Niagara Falls, Ont., public buildings		10, 32					
Nicola-Penticton, B.C., telegraph		28			55		
Nicolet, P.Q.		20		158			
Nicolet River, P.Q.		20					
Noel, N.S.		15		52			
Nominingue, P.Q.				148			
North Bay, Ont., post office, &c		10					
North Cardigan, P.E.I.		16		86			
North Gut, St. Ann's N.S.		15		52			
North Head, N.B.		17					
North River, N.S.		15		52			
North Shore, St. Lawrence, telegraphs		27			9, 30		
North Sydney, N.S., public building		7, 30	4				
" harbour		15					
North Thompson River, B.C.		25	212				
North-west Territories, bridges		27	320				
" rivers		24		206			
" public buildings		12, 35	32				
" telegraphs		28			12, 36		
Notre Dame du Portage, P.Q.		20		149			
Notre Dame de Prineville, P.Q.				255			

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Nova Scotia, dredging				216			
" harbours		14		7			
" public buildings		7, 30	3				
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Oakville, Ont		23		192			
Officers of the department							27
" employed on graving docks							35
" employed on slides and booms							32
Ogden's Pond, N.S		15		53			
Ogilvies, N.S		15		54			
O'Keefe, Wm., gratuity		28					
Oliphant, Ont		23		192			
Ontario, bridges		27		319			
" dredging				259			
" harbours		22		177			
" public buildings		9, 32	15				
" telegraphs		28			12, 35		
Orangeville, Ont., public building		10, 32					
Orillia, Ont., public building		10, 32					
Oshawa, Ont., public building		10	18				
" harbour		23		192			
Otonabee River, Ont		23		262			
Ottawa, art gallery		10, 33					
" buildings and grounds		10, 32	18				
" government house		10	20				
" experimental farm		10, 33	18				
" Major's Hill park		10, 33	20				
" observatory		10, 32	23				
" post office		10, 33	24				
" printing bureau		10, 33	24				
" river		28		255			
" Royal Mint		11	22				
" slides and booms		26		309		4, 8	
" roads and bridges		11		318			
" streets, repairs		27	18				
" Victoria Memorial Museum		11	25				
Owen Sound, Ont., harbour		23		192, 262			
Oyster Pond, N.S		15		55			
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Pacific cable tariff					47		
Panmure Island, P.E.I		16		86			
Paris, Ont., public building		11, 33					
Parent, A. R., gratuity		28					
Parliament buildings, Ottawa		10, 32	18				
Parrsboro', N.S		15		55			
Parry Sound, Ont		23	193				
Partridge Island, N.B., quarantine		8			9		
" wharf		17		106			
Partridge Island, N.S							
Paspebiac, P.Q		20		149			
Peace River road, N.W.T		27		320			
Peel Head, P.Q		20		149			
Pelee Island, Ont., telegraph		28			12, 35		
Pembroke, Ont		23		193			
" public building		11, 33					
Pembroke, N.S		15		55			
Penetanguishene, Ont		23		193, 262			
Penoka, N.W.T., immigration building		35					
Pentecote, P.Q		20		255			
Perce, P.Q		20		150			
Peribonca, P.Q., public building		9, 31					
Peterborough, Ont., public building		11, 33					
" dredging				262			
Petewawa, Ont., wharf		23		194			
" River, slides		26		312			
Petit de Grat, N.S		15		56			

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Petites Bergeronnes, P.Q.		20		150			
Petit Peribonka, P.Q.				150			
Petite Rivière, P.Q.		20		150			
Petit Rocher, N.B.		17		107			
Petites Tourelles, P.Q.		20					
Petite Vallée, P.Q.		20					
Petrolea, Ont., public building		11, 34					
Photographer, departmental		28					
Pickering, Ont.				262			
Pickett's Pier, N.S.		15		56			
Picton, Ont., public building		11, 34					
Pictou Light Beach, N.S.		15		57			
Pictou, N.S		15		218			
" public building		7, 30					
Pierreville, P.Q		20		150, 255			
Pike Creek, Ont.		23		194			
Pipers Cove, N.S.				58			
Pleasant Bay, N.S.		15		58			
Plympton, N.S.		15		58			
Pointe à Elie, P.Q.		20		151			
" aux Esquimaux, P.Q		20		151			
" aux Trembles, P.Q.		21		152			
" au Baril, Ont		22		194			
" du Chêne, N.B		18		107, 222			
Point Edward, Ont.		23		263, 199			
" Platon, P.Q.				255			
" Prim, P.E.I.		16					
Pointe St. Pierre, P.Q.		21		152			
Point Valois, P.Q		21		152			
" Wolfe, N.B.		18		108			
Portage du Fort, bridge		27		319			
Portage la Prairie, Man., public building		12, 34					
Porter's Lake, N.S.		15		66			
Port Arthur, Ont., harbour		23		195, 263			
" public buildings		11, 34					
Port au Pique, N.S.		15		59			
" Bevis, N.S.		14		12			
" Becketton, N.S.		14		11			
" Bruce, Ont.		23		195, 264			
" Burwell, Ont.		23		195, 264			
" Colborne, Ont		23		195			
" " public building		11, 34					
" Daniel, P.Q		20		153			
" Darlington, Ont.		22		180			
" Dover, Ont.		23		196			
" Dufferin, N.S.		15		59			
" Elgin, Ont.		23		264			
" George, N.S.		15		60			
" Greville, N.S.		15		61			
" Hawkesbury, N.S.		15		61			
" Hebert, N.S.				31			
" Hood, N.S.		15		62			
Port Hope, Ont.		23		197, 264			
" public building		11, 34					
Port Latour, N.S.		16		63			
Port Lorne, N.S.		16		63			
Port Maitland, N.S.		16		64			
" Ont.				197			
Port Morien, N.S.		14		18			
Port Mouton, N.S.		16		65			
Portland, N.B., public building		8	7				
Portneuf, P.Q.		21		154			
Port Perry, Ont.		23		264			
Port Rowan, Ont.		23					
Port Selkirk, P.E.I.		17		87			
Port Stanley, Ont.		23		197, 264			
Port William, N.S.							
Poupore, P.Q., engineer's office		31					

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" dredging		23					
Prince Albert, N.W.T., public buildings		12, 35	33				
Prince Edward Island, dredging				220			
" " harbours		16		80			
" " public buildings		7, 30	9				
" " telegraph		27					
Printing Bureau, Ottawa		10, 33	24				
Printing and stationery		13					
Properties purchased and sold							14
Public buildings, British Columbia		13, 35	33				11
" Manitoba		11, 34	30				11
" New Brunswick		7, 30	5				7
" North-west Territories		12, 35	32				11
" Nova Scotia		7, 30	3				6
" Ontario		9, 32	15				8
" Prince Edward Island		7, 30	9				6
" Quebec		8, 31	9				7
" Yukon Territory		13, 36	36				
" generally	6		1				
Public Works Agency, B.C.		28					
Q							
Quaco, N.B.		18		108			
Qu'Appelle, N.W.T., public buildings		12, 35					
" " telegraph		28					
Quatsino, B.C.		25					
Quebec, dredging				254, 255			
" bridges		27		319			
" harbours, &c.		18		118			
" public buildings		8, 31	9				
" telegraphs		27					
" City, public buildings		9, 31	12				
" " wharf		21		154			
Quisibis River, N.B.		18		112			
R							
Red Deer, N.W.T., public buildings		12, 35	33				
Red Deer, Man.		24		300			
Regina, N.W.T., public buildings		12, 35					
Rents, received						6	
" paid		11					
Repentigny, P.Q.		21		154			
Revenue	4					6	
Richard's Landing, Ont		23		198			
Richibucto, N.B., public building		8, 30					
" " wharf		18		109			
Richmond, P.Q., public building		9, 31					
" Bay, P.E.I.		17					
Rideau Hall, Ottawa		10	20				
Rigaud, P.Q.		21		256			
Rimouski, P.Q., public building		9, 31					
" " wharf		21			155		
River Kaministiquia, Ont.				260			
" Nicolet, P.Q.				158			
" St. John, N.B.		18		110, 223			
" St. Lawrence		23					
" St. Louis, P.Q.		21		158			
" St. Maurice, dredging		21	258				
" " slides, &c		25	315				
Rivière à la Pipe, P.Q.		21	156				
" aux Renards, P.Q.		21	156				
" aux Puces, Ont.		23					
" Chateauguay, P.Q.		21		253			
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" du Lièvre, P.Q.		21, 26		308			

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" Jesus, P.Q		21		256			
" L'Assomption, P.Q		21		254			
" Maskinongé, P.Q		23					
" Ottawa		21, 23					
River Otonabee, Ont		23		262			
Rivière Ouelle, P.Q		11		157,256			
" Richelieu, P.Q		25					
" Saguenay, P.Q		21, 25					
" Ste. Anne, P.Q		20					
" St. Godefroi, P.Q		20					
" Touladie, P.Q		21		176			
River Upsalquitch, N.B		18		117			
Rivière Verte, P.Q		21		158			
Roads and bridges		27		318			
Roberval, P.Q., Immig. building		9, 31					
" wharf		21		256			
Robbins Landing, Ont		23					
Rondeau, Ont		23		198,264			
Rossland, B.C., public buildings		13, 36	34				
Rouleau, J. H., gratuity		28					
Ruisseau le Blanc, P.Q		21		159			
Rustico, P.E.I		17		87			
S							
Ste. Adélaïde de Pabos, P.Q				161			
St. Aimé, P.Q		21		256			
St. Alexis, P.Q		21		162			
St. Alphonse de Bagotville, P.Q		21		162			
St. André de Kamouraska, P.Q		21		163			
St. Andrews, P.Q		21		257			
" Rapids, Man		24					
Ste. Anne de la Pérade, P.Q		21		164			
" de la Pocatière, P.Q		21		165			
" des Monts, P.Q		21		165			
" de Sorel, P.Q		21		165			
" du Saguenay		21		166			
St. Antoine, P.Q		21		257			
St. Blaise, P.Q., dredging		21		168			
St. Catharines, Ont., public buildings		11, 34	27				
St. Charles Borromee, P.Q		21		168			
St. Charles de Caplan, P.Q		19		257			
St. Denis, P.Q		21		257			
St. Eustache, P.Q., post office		31					
Ste. Emélie, P.Q		21		168			
Ste. Famille, P.Q		21		168			
St. Félicien, P.Q		21		169			
St. Fidèle, P.Q		21		169			
St. Erancis River, N.B		18		113			
St. François, P.Q		21		169			
" de Sales, P.Q		21		169			
St. Fulgence, P.Q		21		170			
St. Gédéon, P.Q		21		170			
Ste. Geneviève, P.Q		19		170			
St. George de Malbaie, P.Q		20					
St. Godfroi, P.Q		21		171			
St. Henri, P.Q., public building		9, 31	13				
" de Taillon, P.Q		21		156			
St. Hilaire, N.B		18					
St. Hyacinthe, P.Q., public buildings		9, 31	13				
St. Ignace, P.Q		22		171			
St. Irénée, P.Q		22		172			
St. Jean, Ile d'Orleans, P.Q		22		172			
St. Jean de Chaillons, P.Q		22		172, 257			
St. Jean Port-Joli, P.Q		22		172			
St. Jerôme, P.Q., public building		9, 31					
" wharf		22		173			

Names of Places, &c.	Part 1 Page.	Part 2 Page.	Part 3 Page.	Part 4 Page.	Part 5 Page.	Part 6 Page.	Part 7 Page.
S							
St. John River, N.B.		18		110, 223			
St. John harbour, N.B.		18		222			
" N.B., public buildings		8, 30	6				
St. Johns, P.Q., "		9, 31					
" wharf				173, 257			
St. Joseph, Ont.		24		199			
St. Laurent, Ile d'Orléans		22		173			
St. Louis du Mile End, P.Q.		9	14				
St. Mathias		22					
St. Maurice River, dredging		21		258			
" " slides, etc		25		315		4, 11	
St. Michel de Bellechasse, P.Q.		22		173, 258			
St. Ours, P.Q.		22					
St. Peter's Bay, P.E.I.		17					
St. Peters, N.S., telegraph		27					
St. Roch, P.Q., public building		9, 31					
St. Roch des Aulnaies, P.Q.		22		174			
St. Siméon, P.Q.		22		174			
St. Stephen, N.B., public building		8, 30	8				
St. Thomas, Ont., public building		11, 34					
Sacré-Cœur, P.Q.		21					
Saguenay River, slides		25					
" " telegraph		27			10		
Salmon, River, N.S.		18		112			
Salmon River, B.C.		25		212			
Sandwich, Ont., public building		11	27				
Sandy Cove, N.S.		16			67		
Sarnia, Ont., public building		11, 34					
" " dredging		23		199, 265			
Saskatoon, N.W.T., public building		13, 35					
Saskatchewan River, N.W.T.		24		206			
Saugeen River, Ont.		24		199, 265			
Saulnierville, N.S.		15		67			
Sault Ste Marie, Ont., wharf		24		200			
" " " public building		11	27				
Sault Montmorency, P.Q.		20		160			
Savage Harbour, P.E.I.		17		87			
Savard, P., gratuity		28					
Scott, David, gratuity		28					
Scott's Bay, N.S.		15		68			
Seaside, N.S.		15		67			
Secretary, staff, salaries		28					
Selkirk, Man., immigration building		12, 24	30				
" " wharf		24		205			
Selkirk, Y.T., building			39				
Seven Islands, P.Q.		22		127			
Severn River, Ont.		24		200			
Shediac, N.B.				107, 222			
Shelburne, N.S., harbour		16		219			
" post office		7					
Sherbrooke, P.Q., public buildings		9, 31					
Shegawake, P.Q.		22		160			
Ship Channel, St. Lawrence	3						
Shippegan, N.B.		18		113, 222			
Short Beach, N.S.		16					
Shrewsbury, Ont.		24		200			
Sidney, B.C.		25		213			
Simcoe, Ont., post office		11					
Skeena River, B.C.		25		213			
Skinner's Cove, N.S.		16		68			
Slides and booms		25		309		3	
" dues						8, 11	
" officials							32
Smith Falls, Ont., public building		11, 34					
Sorel, P.Q., public buildings		9, 31					
" " harbour		22		160, 258			
Souris, P.E.I.		17		88			
" " post office		7	9				

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S							
South British Columbia, telegraphs					53		
Southampton, Ont		24		201			
Spallumachine, B.C		25		214	54		
Springhill, N.S., public building		7, 30					
Spry Bay, N.S		16		69			
Stewart River, Y.T., building			39				
Stokes Bay, Ont		24		201			
Stonehaven, N.B		17		115			
Stonewall, Man., immigration building		12					
Stratford, Ont., public buildings		11, 34	28				
Strathcona, N.W.T., immigration building		13, 35					
Strathroy, Ont., public building		11, 34					
Sulphur Creek, Y.T., building				39			
Summerside, P.E.I., harbour		17					
" public building		7, 30					
Summerville, N.S		16		69			
Superintendent of telegraphs		28			1		
Surveys and inspections		28					
Sussex, N.B., public buildings		8, 30	8				
Swims Point, N.S		16		70			
Sydenham River, Ont		24					
Sydney, N.S., public building		7, 30	5				
" quarantine wharf		16		70, 219			
Sydney Mines, N.S., public building		7	5				
T							
Tableau, P.Q		19		142			
Tariff, telegraph lines					19, 46		
Technical books of reference		28					
Telephones		11			22		
Telegraph lines, generally	7	27			19		
" report					1		
" revenue					21		
" service staff, &c		28			24		
Temporary employees		28					
Tenby Bay, Ont		24		201			
Tenecape, N.S		16					
Terrebonne, P.Q., public building		9	14				
" wharf		22		175, 258			
Teulon, Man., immigration building		34					
Thessalon, Ont		24		202			
Thetford Mines, P.Q., public building		9, 32	14				
Thetis and Keeper Island, B.C		25		214			
Thorah Island, Ont		24		202			
Thornbury, Ont		24		202			
Three Fathom Harbour, N.S		16					
Three Rivets, P.Q., harbour		22		175, 258			
" public buildings		9, 32	15				
Tignish, P.E.I		17					
Title Passage, N.S				70			
Tobique River, N.B		18		112			
Toronto Junction, Ont., public buildings			28				
Toronto, Ont., harbour		24		202			
" public buildings		11, 34	28				
Total expenditure of department	5	29					
Touladie River, P.Q		21		176			
Tracadie, N.B., lazaretto		8, 30	8				
Transportation Commission	9	28					
Traverse, N.B		18					
Treadwell, Ont		24		203			
Trent and Newcastle slides		206		316		4, 12	
Trenton, Ont., harbour		24		265			
" public building		11, 34					
Trent River, Ont		24		265			
Trois Lacs, P.Q		22					
Trois Pistoles, P.Q		22		176			
Trottier, M. A., gratuity		28					

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T							
Trout Cove, N.S.		16					
Trout River, N.B.		18		113			
Truro, N.S., public buildings		7, 30					
Touladie River		18					
Tynemouth Creek, N.B.		18		115			
Tyrian, SS., cable ship		27					
U							
Uncollected slide and boom dues						11	
Upper Kempt Head, telegraph					7		
" Salmon River, N.B.		18		116			
" St. John, N.B.		18		111			
" Woods Harbour, N.S.				71			
Upsalquitch River, N.B.		18		117			
V							
Valois, P.Q.		21		152			
Valleyfield, P.Q., public building		9, 32	15				
Vancouver, B.C., public buildings		13, 36	35				
" Salt Springs, telegraph		28					
Verchères, P.Q.		22		176			
Vernon-Kelowna, B.C., telegraph		28			14, 55		
Victoria, B.C., harbour		25		302			
" " public buildings		13, 36	35				
Victoria-Cape Beale, telegraph		28			15		
" -Andrew, N.W.T, telegraph		28					
Victoria Beach, N.S.		16		72			
Victoria, N.S.				71			
Victoria National Museum		11	25				
Victoriaville, P.Q., public building		9, 32					
Ville Marie, P.Q.		18, 22		177, 258			
Virden, Man., building		12	30				
W							
Walkerton, Ont., pub. building		11, 34					
Wallace, N.S.		16		72			
Washabuck, N.S.				73			
Washademoak, N.B.		18		223			
Washago, Ont.		24					
Water, public buildings		30					
Waubaushene and Fesserton, Ont.				266			
Wedge Point, N.S.		16		73			
Wendover, Ont.		24		203			
West Arichat, N.S.		16		74			
West Bay, N.S.		16		75			
West Berlin, N.S.		16		75			
Westfield, N.B.		18		224			
West Chezzetcook, N.S.		16		75			
West Point, P.E.I.		17		88			
" Woods Harbour, N.S.				76			
Whitby, Ont.		24		266			
White's Cove, N.S.		16		77			
White Head, N.S.		16		76			
White Horse, Y.T., building		13, 36	39				
White Mud River, Man.							
Whitewater, N.S.		16		76			
Whycocomagh, N.S.		16		77			
Wiarton, Ont.		24		266			
Williams Head, B.C., quarantine		13, 36	36				
" wharf		25					
Wilson Beach, N.B.		17		117			
Windsor, N.S., public building		7, 30					
" harbour		16		78			
Windsor, Ont., public building		11, 34					
Wingham, Ont., post office		11	29				

Names of Places, &c.	Part 1 Page.	Part 2 Page.	Part 3 Page.	Part 4 Page.	Part 5 Page.	Part 6 Page.	Part 7 Page.
W							
Winnipeg, Man., public buildings		12, 34	30				
" River, Man.				206			
Wolfe Island, Ont.		23		266			
Wolfville, N.S.		16		78			
Wolseley, N.W.T., court house		13, 35					
Wood Island, P.E.I.		17		89, 221			
Wood Mountain, N.W.T., telegraph		28					
Woodstock, N.B., public buildings		8, 30	8				
" Ont., public buildings		11, 34	29				
Y							
Yamaska River, P.Q., lock and dam		22		308			
"		22					
Yarmouth, N.S., dredging		16		220, 258			
" harbour		16		79			
" public building		7, 30	5				
York Bridge, Ont		27		320			
Yorkton, N.W.T., public buildings		13, 35					
Yukon River		25					
Yukon, public buildings		13, 36	36				
" telegraphs	8	28			15, 44		

PART I

REPORT

OF THE

DEPUTY MINISTER OF PUBLIC WORKS

FOR THE YEAR ENDED JUNE 30

1905

REPORT

OF THE

DEPUTY MINISTER OF PUBLIC WORKS

FOR THE FISCAL YEAR, 1904-05.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, March 7, 1906.

To the Honourable C. S. HYMAN,
Minister of Public Works of Canada,
Ottawa, Ont.

SIR,—I have the honour to submit the report of the Department of Public Works of Canada for the fiscal year ended June 30, 1905.

It contains, as usual, an extended review of all the works executed during the fiscal yaer, with, in addition, the annual financial statement of the Accountant, a report by the Collector of Revenue and other appendices referring to the work carried on by the department.

The total expenditure in all services during the year 1904-05 has amounted to the sum of $8,304,009.77, compared to $6,592,289.62 for the preceding year, and $5,830,-518.11 for the year 1902-03.

Those figures show the material increase in the number of works under the control of the department and indicates that, notwithstanding the fact that the superintendance of the ship channel between Montreal and Quebec no more devolves upon the Department of Public Works, the balance of the work under its control not only has not been reduced but, on the contrary, has been materially increased.

As was remarked in my report of last year, a wonderful development continues to take place in every branch of the department; the number of harbours, for the improvement of which Parliament had provided moneys, has increased steadily; the dredging operations have covered a much larger navigable area than in any previous year, while the buildings under the control of the Chief Architect have been of a higher class and much greater in number.

It follows, therefore, that the correspondence work of the department, and especially that under the control of the Secretary has had to keep pace with the increase in the actual technical work. The statement of the correspondence shows a large addition to the number of letters sent and received, although it does not include the corr.s-

pondence of the Minister on purely departmental matters, such correspondence not being taken into account in the statement published at the end of this volume.

In his report of the preceding year the Accountant, making a comparison between the year 1899-1900 and the year 1903-04, showed that the number of departmental cheques issued in the former year had been about 22,000, whilst in the latter year that number amounted almost to 45,000. For the year 1904-05, the number of cheques, inclusive of those issued upon direct application to the Department of Finance, comes to the total, according to the Accountant's statement, of 56,144.

The expenditure made during the last fiscal year, as above referred to, may be subdivided as follows as compared with the preceding year :—

	1904-05.	1903-04.
Harbour and river works	$2,493,371 24	$3,389,936 02
Dredging and plant	1,458,865 25	374,181 94
Slides and booms	195,358 95	127,549 37
Bridges and roads	94,348 13	103,759 29
Public buildings	3,067,415 65	1,890,281 77
Telegraphs	462,064 36	385,693 51
Miscellaneous	532,586 19	220,887 72
Totals	$8,304,009 77	$6,492,289 62

The revenue collected by the department during the year under review has been a trifle in excess of the preceding year, the several items as reported by the Collector being as follows :—

	1904-05.	1903-04.
Slides and booms	$ 82,873 97	$ 71,331 20
Graving docks	24,754 30	32,444 56
Locks	Nil.	140 60
Rents	4,303 00	4,034 50
Telegraphs	139,758 44	147,391 94
Casual revenue	28,663 96	18,695 97
Totals	$280,353 67	$274,038 77

HARBOURS AND RIVERS.

The extensive report of the Chief Engineer, published herein as appendix 4, contains a reference to each of the works undertaken under his control, as well as a list of all the surveys which have been made preparatory to the works of construction.

The total amount given in the Accountant's report of the expenditure of this branch does not, and cannot, give any complete idea of the work actually performed, as in connection with a number of the items voted, only a preliminary expenditure has been made with a view to the preparation of plans and specifications for the purpose of calling for tenders. This explains why the long and tedious labours

of the engineers in obtaining that preliminary information can hardly be chronicled otherwise than by the very brief mention of the places at which the survey was made, the expenditure for such survey being defrayed out of the general vote for that purpose and therefore not appearin gat all under the name of the work in the Accountant's statement.

Of such surveys, the number for the present year has been 376, as against 238 for the year previous and 281 during the year 1903-04.

This reference to surveys does not include that now in progress to obtain the necessary data concerning the projected canal from the waters of the Georgian bay, to the St. Lawrence at Montreal.

The report of the Chief Engineer not only gives important information with reference to the class, nature, extent and cost of each work executed under his control, but also refers to the dredging operations which have been performed by the department throughout Canada.

It may here be remarked that when the control of the ship channel between Montreal and Quebec was given over to the Department of Marine and Fisheries, the largest part of its dredging fleet also went to that department at the time of the transfer. The other dredges, owned by the department and operating in the several provinces, were also getting old and out of date. During the year under review, the department has proceeded with the, already commenced, improvement of its dredging fleet by the renewal in some cases of the hulls of the dredges ,their enlargement, the overhauling of their machinery and, in several cases, by the construction of entirely new plant. In this manner a new snag-boat has been constructed for the province of British Columbia, while steps have been taken to procure towing plant both for the province of British Columbia and the province of Manitoba. For the province of Ontario, a new hydraulic dredge is under construction in the building yards of 'The Polson Iron Works Company,' while another hydraulic dredge, as well as a spoon dredge, are also being constructed, the former for the Maritime Provinces generally, and the latter for the province of Prince Edward Island, to replace the old 'Prince Edward,' which has been in use in that province ever since it joined confederation in 1872.

The new dredge, the 'W. S. Fielding,' has been put in commission during the past summer and was successfully navigated to Yarmouth, N. S., where she will be placed at work during the next season. She was constructed and equipped at the government ship yard at Sorel, Quebec.

The improvement and enlargement of the dredging fleet of the department is a necessity which is apparent to any one who has given any study to the conditions of the transportation and general trade in this country. The class of vessels navigating our great lakes and rivers, and calling at our principal ports, is becoming larger both as regards size and draft, and the old standard depth which had been provided in most of the harbours and rivers is now found to be insufficient for those vessels. The necessity for additional dredging is being felt at the same time all over the navigable areas of the country, and while Parliament has been very generous in providing

the means required for that purpose, still it has been difficult, even when calling into service the reserve of dredges owned by private individuals and companies, to execute at the proper time the dredging most needed.

The great improvements which are now outlined, and which will be rendered obligatory by the increase in the cereal products of the great west, and the great enlargement of the railway carrying facilities, will necessitate dredging of greater magnitude and of a more urgent nature in the years to come. Those requirements will tax to the utmost the capacity of all the dredging vessels either possessed by the state or by private individuals.

The report of the Chief Engineer contains a special chapter concerning dredging. It gives in detail the work of each dredge employed, the nature of the soil removed, the depth which has been procured and the cost per yard of each class of dredging.

In the section concerning the harbours most particularly, a description is given of all works performed, whether by contract or by day labour. It will be seen that the former course has been selected at all points where it was practicable to do so, and where it was thought that rapidity of work and cheapness would be better ensured by having the work done by contract.

Harbour works are being performed throughout Canada at over 160 different points, while dredging was carried on at over 60 points in the Dominion.

I am happy to note here the appointment of Mr. E. D. Lafleur, as Chief Engineer of the department, after a service of over 20 years as engineer, during eight of which he occupied the position of Acting Chief Engineer. His appointment as Chief Engineer was made by an Order in Council of January 7, 1905.

PUBLIC BUILDINGS.

This branch of the service, which, as shown by the statement above given, has expended $3,067,415.65, as compared with $1,890,281.77 in the preceding year, has, as usual been administered, in his well known successful manner, by the present Chief Architect, Mr. D. Ewart. Not only has the number of buildings to be constructed and supervised been largely in excess of the past year, but the buildings commenced during the year have been in themselves the most important since the construction of the Langevin block and, that of the Parliament and departmental buildings in this city. It is during the year under review that the department has commenced the construction of the new Victoria Museum in the city of Ottawa, of the Mint and Archives buildings, also in Ottawa, of a new post office in Winnipeg, of a new public building in Vancouver, and of large military buildings throughout the various provinces.

The report of the Chief Architect shows in detail the nature and value of the work performed, the number of new buildings for which contracts have been made, including those above mentioned and the military buildings, being twenty-six and six new buildings having been entirely completed during the year.

The extensive repairs to the Ottawa Post Office are almost completed, there remaining only the interior fittings to be placed in position, and contracts for these have been entered into at the date of the writing of this report.

In addition to the construction of new works, plans and specifications have been prepared for quite a number of buildings which will be commenced during the current fiscal year, and will be made the subject of next year's report.

Furthermore, the ever increasing number of buildings has caused additional work in connection with the maintenance and repair to the existing ones, coupled with the supervision of their heating, lighting and water services. All those works keep a large force of architects and draughtsmen well employed under the direction of the Chief Architect, their work during the past year having been eminently satisfactory.

TELEGRAPHS.

The telegraph service of the department has remained about the same as noticed in the previous year's report, only a few lines of not very great extent having been constructed along the shore of the River Saguenay and some extension of existing lines having been made in Cape Breton Island and in the North-west Territories. The number of miles of telegraph lines now owned and controlled by the Department of Public Works amounts to 6,590.

The attention of the public has very often been called to the fact that it has never been the policy of the government of Canada ever since the first government line was built in 1886, to the present date, to construct or maintain those lines as a paying investment. They have been, in mostly all cases, constructed between points where, although the necessities of trade required modern means of communication, still the volume of that trade and the sparse population of the country traversed could not ensure those local returns which would enable a surplus of revenue to be shown over expenditure, or at least a balance between one and the other. The construction of these lines has however rendered a national service; those, for instance, on the north shore of the St. Lawrence, between the Labrador country and Quebec, having been of incalculable help and benefit, not only to fishermen plying their avocations on either shore of the Gulf of St. Lawrence, but also to the pioneer establishments which have sought a home in several sections of the hitherto uninhabited country from the River Saguenay to the east. In the same way, the lines constructed in British Columbia and the line which has, for the past six years, kept the Yukon district in touch with the rest of Canada and of the civilized world have been of great use and benefit to the country.

None of those lines would probably have been constructed by private companies, whose shareholders look first to profitable returns and are not always moved by philanthropic ideas and the desire to benefit the country at large.

The conferring of that benefit is a duty which devolves upon the central government, and the several administrations which have controlled the country from 1886 to the present date, have practically followed the same policy and given telegraphic communication in a field it was not probable that private compaies would ever enter.

It is somewhat a difficult matter to state whether or not it would be possible to have these government lines less expensive in management and produce greater returns. The very wildness of the country where these lines are built, the difficulty of traversing them, their exposed situation, &c., make their maintenance more difficult, the repairing stations having to be nearer one to the other, the manning of those stations having to be greater and the very isolation of the repairers and operators engaged upon the work, making it necessary to compensate those employees in a more liberal manner in the payment of their salaries.

It is however with a great degree of satisfaction that the department is able to report that all its lines have been in a fair state of maintenance and operation during the year under review, although there is a tendency to a diminution in the revenue of the Yukon line. This reduction is largely due to the construction by the United States government, under its signal service, of land lines and cables in Alaska, consisting of a series of land lines from Nome to Valdez, and a cable system connecting all the important points in south-eastern Alaska with the telegraphic network of the United States. A large proportion of the telegraph business which used, before the construction and completion of the United States system, to be handled by our Yukon line is now sent via the other lines, as is shown by the number of messages handled by them, which during the past year have amounted to 134,630.

In the case of the United States telegraph lines, as well as in our case, the Alaskan communication is far from being made a paying investment and in his report for the year 1905, the Secretary of War, states that 'as a matter of fact the cost of operation and maintenance is and probably will be for years greater than the receipts.' In his remarks as to the future of the lines, the Secretary of War makes the statement that 'no private corporation can efficiently maintain and operate the land lines.'

It is also pointed out in that report that the great cost of maintaining that communication is still somewhat smaller than it might otherwise be, by reason of the fact that the whole of the Alaskan system of telegraph communication is under the control of the Army corps through its signal branch and that the men in charge of the stations received the small pay of from $13 to $54 per month with rations, in a country where day labourers earn from $4.50 to $10 per day, in some cases with board, and skilled labourers earn from $10 to $15 per day. We unfortunately are not so well favoured as regards the small cost of our staff, and had the United States government to engage their personnel in the open field instead of recruiting it from the ranks of their regular army the showing of their balance sheet would still be less satisfactory. The report concludes by stating that in the event of the sale or transfer of the lines, to private interest, such would unavoidably be accompanied by higher tariffs.

The report of the General Superintendent of our telegraph lines contains the usual statement as to the names, locations and number of stations, the names and salaries of superintendents, repairers, operators, &c., the location and length of lines and cables and a financial statements as to revenue and expenditure.

GEORGIAN BAY CANAL SURVEY.

In a separate appendix to this volume will be found a progress report from Mr. Arthur St. Laurent, engineer in charge of the survey, on the progress made during the year under review. The report is accompanied by appendices containing statements by each of the district officers in charge, under his direction, and gives rather important and complete information as to the organization of the survey, the progress it has made and the expectation of completion within the next year; I will not attempt to review Mr. St. Laurent's report, inasmuch as the whole of it requires to be read, if the nature of the work performed up to the present day is to be well understood. The report is concise, to the point, and without arriving yet at any conclusions, will permit the reader to realize the vast amount of work, as well as the accuracy of information given, upon the field which is being covered. The engineers employed are among the best the country possesses and it is a source of gratification that they are the product of Canadian teaching, Canadian schools and Canadian experience, and well able to cope with all the difficulties surrounding this important work.

COMMISSIONS.

The reports of the Transportation and International Waterways Commissions are published separately and will not be found in this book, although they are treated as proper appendices to this report.

With the report submitted by the Transportation Commission to the Minister in December last, the labours of that body may be considered to be completed. It is not within my province to do more than indicate its presentation, as it will probably be in the hands of the public at the same time as this report to you will be.

It contains among the mass of information which is being conveyed by the Commission, certain recommendations which touch upon matters of policy and which will no doubt form the subject of interesting discussions when the report is placed before the House. Whether all of its recommendations will be considered acceptable, is a question which will be later on decided, but whether they are accepted or not, their presentation in the report is made in a way which is bound to call forth an interesting discussion as to their value and cannot fail to be ultimately of great advantage to the important question to which they refer. As established at the time of the writing of the report, the Commission was composed of Mr. Reford, as chairman, Mr. J. H. Ashdown, as member, and Mr. C. N. Bell, as secretary; the first chairman, Mr. John Bertram, as well as the French Secretary, Mr. Perrault, having died during the course of the past year; the latter was not replaced.

Another of the appendices of this report, which will be published separately, is the progress report of the International Waterways Commission, established in January, 1905.

Matters of great importance have and will come before the Commission for study, but the scope of their work has been somewhat restricted by the claim brought forward by the government of the United States that their labours should not go outside

of the waters absolutely adjoining the boundary between the United States and Canada. The position taken by Canada, and by the Commission, was clearly set forth in a report made by you to Council and communicated to the government of the United States, but in order to permit of certain other matters of great importance being considered, the Canadian section of the Commission was allowed to proceed for the time being in accordance with the view taken by the United States government, there being an understanding that at the ensuing session of Congress, action would be taken for the proper legal extension of the Commission's powers in the direction indicated by Canada.

The interim report of the Commission contains all the Orders in Council and various communications between the United States and Canadian sections of the Commission, as well as with the Secretary of State for the United States, in reference to the scope of the Commission. It also contains records and minutes of the meetings and of their labours connected with the utilization of boundary waters at two of the most important points in both countries, namely: Sault St. Marie and Niagara. The latter question is one which is given considerable attention, in the northern part of the American continent; the claim being advanced and well worthy of consideration that the value of the falls from a scenic and panoramic point of view is fully worth preserving even when weighed alongside of the great commercial worth of the development of power which has taken place there during the past few years.

MISCELLANEOUS.

In addition to the matters above referred to, the other appendices attached to this report will be found, as usual, complete, those referring to purchase and sale of property, lands leased by and to the department, contracts let, the Art Gallery, officials, &c., &c., being well worthy a perusal.

Before concluding this report, I may say that I have strong hopes that the review of the work of the department for the past twenty years, on which I have been labouring for some time and which is in some respects completed, and in others rapidly nearing completion, will be issued during the course of the coming summer.

I beg to offer the expression of my utmost satisfaction to all the employees of the department who have assisted in carrying on, so successfully, the very important works entrusted to them and to myself during the year under review, and I must say that they all deserve the greatest praise for the manner in which they have acquitted themselves of their duties.

I have the honour to be, sir,

Your obedient servant,

A. GOBEIL,
Deputy Minister.

PART II

REPORT OF THE CHIEF ACCOUNTANT

FOR THE

FISCAL YEAR ENDED JUNE 30

1905

DEPARTMENT OF PUBLIC WORKS, CANADA,
ACCOUNTANT'S OFFICE,
OTTAWA, January 20, 1906.

A. GOBEIL, Esq.,
Deputy Minister,
Department of Public Works,
Ottawa.

SIR,—I beg to submit the annual report upon the expenditures made by this department during the fiscal year ended June 30, 1905.

As in previous years the report takes the form of three tabular statements, as follows :—

Statement A, giving for each work the amounts expended for construction and repairs severally, and for each province the total cost of staff and maintenance of public buildings.

Statement B, subsidiary to the above and giving separately for each building the cost of rent, salaries, heating, &c.

Statement C, showing amounts advanced by government for the construction of certain works of a semi-public character, under statutory authority and after inspection by officers of this department. There having been during 1904-05 no transactions of this nature, statement C is included only for the purpose of preserving continuity of form.

Notwithstanding the fact that one of the largest works formerly under the charge of this department, namely, the deepening of the St. Lawrence ship channel was transferred to another department on June 30, 1904, the total expenditure during the year 1904-05 has exceeded that of the previous year by more than 27 per cent as follows:—

Total expenditure 1904-1905	$8,304,009 77
" " 1903-1904	6,492,273 52
Increase	$1,811,736 25

An examination of that part of statement A. which treats of public buildings, will show that the chief increases, under this head, are due to the following items of construction or enlargement:—

Court Houses, &c., at Edmonton and Prince Albert.
Custom Houses, &c., at Halifax, Montreal and Toronto.
Drill Halls, &c., at Woodstock, N.B., Quebec, Que., Brantford, Cobourg, Hamilton, London, Statford, St. Catharines and Woodstock, Ont., and Rossland, B.C.
Immigration Buildings at Halifax, Quebec (including trachoma hospital) and Winnipeg.
Postal Stations, including pneumatic tube distribution systems at Montreal and Toronto.
Post Offices at Ottawa and Winnipeg.
Quarantine Stations, at St. John, N.B., Quebec, Que., and Williams Head, B.C.

Also the following at Ottawa :—

Astronomical Observatory, Addition to Western Departmental Building. Addition to Printing Bureau, Improvements in Parliament Building, New Workshops, Royal Mint.

Under harbours and rivers, the increase of expenditure is found to have been almost evenly distributed over a large number of works in each of the provinces. The undermentioned are a few of the more notable ones :—

Quebec, Que., Collingwood, Fort William and Port Arthur, Ont., and the Survey for a waterway from Georgian Bay to Montreal, the latter classed in statement A under the heading of miscellaneous.

As regards the operations of the branch of the department under my charge, I may be permitted to say that a slight increase in the staff together with some minor improvements in organization have effected a considerable betterment in the speed with which the business of the branch has been despatched.

The volume of work passed through the branch during 1904-05 may be briefly indicated as below :—

	Number of cheques issued.	Amount.
		$ cts.
Direct payments by departmental cheque—		
Issued by head office, Ottawa	46,340	4,491,676 63
" agencies	9,058	645,280 73
Total departmental cheques	55,398	5,136,957 36
Payments by Receiver General's cheque after applications issued by this office upon the Auditor General (contract work, &c.)	746	3,167,052 41
Total expenditure		8,304,009 77

I have the honour to be, sir,

Your obedient servant,

A. G. KINGSTON,
Accountant.

STATEMENTS OF EXPENDITURE

DURING

FISCAL YEAR ENDED JUNE 30, 1905

STATEMENT A.—Showing the Amounts Expended by the Department of Public Works of Canada during the Fiscal Year ending June 30, 1905.

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia.				
Amherst post office, &c	1,689 30	19 20		1,708 50
Annapolis post office, &c		101 69		101 69
Antigonish post office, &c	642 97	18 26		661 23
Baddeck post office, &c		5 00		5 00
Canso post office	246 74			246 74
Dartmouth post office, &c		29 82		29 82
Digby post office, &c	797 17	35 90		833 07
Glace Bay post office	6,600 00			6,600 00
Guysboro', post office, &c		40 27		40 27
Halifax, Asst. Receiver Gen. Office		65 00		65 00
" custom house (new)	71,963 71			71,963 71
" Dominion building		5,819 39		5,819 39
" immigrant shed	11,008 10	1,974 73		12,982 83
" Lawlor's Island quar. station	3,214 70			3,214 70
Kentville, post office, &c		23 00		23 00
Liverpool post office, &c		40 71		40 71
Lunenburg, post office, &c		60 58		60 58
Middleton armoury	201 69			201 69
Nappan experimental farm	300 52	100 81		401 33
New Glasgow, post office		82 75		82 75
North Sydney, post office	3,167 40	434 09		3,601 49
" quarantine station		320 09		320 09
Pictou custom house		996 09		996 09
" post office		1,267 26		1,267 26
" quarantine station		521 75		521 75
Shelburne, post office	20 00			20 00
Springhill, post office, &c		77 80		77 80
Sydney, post office, &c	16,553 78	70 63		16,624 41
Sydney Mines, post office, &c	14,138 59			14,138 59
Truro, post office, &c	102 73			102 73
Windsor, post office	28 90			28 90
Yarmouth, post office, &c	2,592 25	59 88		2,652 13
Heating, lighting, water, &c., for all buildings in Nova Scotia (for details, see page 30)			31,313 03	31,313 03
Totals, Nova Scotia	133,268 55	12,164 70	31,313 03	176,746 28
Prince Edward Island.				
Charlottetown, Dominion building	8,948 24	883 88		9,832 12
Montague, post office		9 74		9 74
Souris, post office	1,107 11			1,107 11
Summerside, post office		168 86		168 86
Heating, lighting, water, &c., for all buildings in Prince Edward Island (for details, see page 30)			6,062 01	6,062 01
Totals, Prince Edward Island	10,055 35	1,062 48	6,062 01	17,179 84
New Brunswick.				
Bathurst, post office, &c	1,165 15			1,165 15
Campbellton, post office, &c	7,949 11			7,949 11

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
New Brunswick—Con.				
Carleton (St. John), post office		141 41		141 41
Chatham, post office, &c		256 36		256 36
Dalhousie, post office, &c		43 36		43 36
Dorchester, custom house		25 80		25 80
Fredericton, post office, &c		286 82		286 82
" drill hall	3,839 66			3,839 66
Marysville, post office		110 40		110 40
Moncton, post office		285 81		285 81
Newcastle, post office		179 98		179 98
Partridge Island, quarantine station	52,795 76			52,795 76
Portland (St. John), post office		75 00		75 00
Richibucto, post office	5,122 73	11 90		5,134 63
St. John, custom house		1,794 98		1,794 98
" immigration building	1,747 95			1,747 95
" post office		763 33		763 33
" savings bank		126 17		126 17
St. Stephen's, post office, &c		343 50		343 50
Sussex, armoury		3 00		3 00
" post office, &c		234 08		234 08
Tracadie, lazaretto	1,315 00	619 62		1,934 62
Woodstock, armoury	13,263 96			13,263 96
" post office, &c		116 08		116 08
Heating, lighting, water, &c., for all buildings in New Brunswick (for details see page 30.)			28,099 73	28,099 73
Totals, New Brunswick	85,451 37	7,165 55	28,099 73	120,716 65
Maritime Provinces.				
Generally			1,253 20	1,253 20
Quebec.				
Acton Vale, post office	11,993 26			11,993 26
Aylmer, post office		116 93		116 93
Berthierville, post office		128 19		128 19
Buckingham, post office, &c		419 60		419 60
Chicoutimi, post office, &c	3,280 33			3,280 33
Coaticook, post office, &c		77 10		77 10
Drummondville, post office, &c		47 42		47 42
Granby, post office, &c	999 97	18 75		1,018 72
Grosse Isle, quarantine station	20,900 00			20,900 00
Fraserville, post office, &c		1,179 69		1,179 69
Hochelaga, post office	1,612 13	61 91		1,674 04
Hull, post office, &c		362 00		362 00
Joliette, post office, &c	1,810 87	83 23		1,894 10
Lachine, post office		533 24		533 24
Lachute, post office, &c	1,206 80			1,206 80
Laprairie, post office, &c		467 71		467 71
L'Assomption, post office, &c		660 17		660 17
Lévis, cattle quarantine		140 86		140 86
" post office, &c	2,445 69	311 50		2,757 19
Longueuil, post office, &c	6,217 30			6,217 30
Montmagny, post office, &c	2,349 60	16 10		2,365 70
Montreal, custom house	5,170 68			5,170 68
" examining warehouse	31,917 26	110 37		32,027 63
" immigration office	71 65			71 65
" inland revenue office	2,167 50	413 98		2,581 48
" post office	5,027 28	3,850 24		8,877 52
" " power for elevators			2,717 70	2,717 70

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Concluded.				
Montreal, pneumatic tube system between G. P. O. and new postal statioins.	42,106 36			42,106 36
" new postal station (St. Catherine St.)	50,116 89			50,116 89
Quebec, citadel buildings		2,250 48		2,250 48
" clerk of works office, P.O		215 34		215 34
" culler's office		267 65		267 65
" custom house		1,700 16		1,700 16
" drill shed	20,220 64			20,220 64
" examining warehouse		933 85		933 85
" King's wharf building, (Marine Dept)	669 90	612 07		1,281 97
" immigration building (Louise embankment)	12,063 20			12,063 20
" " hospital for trachoma	27,438 50			27,438 50
" observatory		1,282 33		1,282 33
" post office		4,147 32		4,147 32
" " power for elevator			200 00	200 00
" military buildings :				
" Dominion arsenal	224 85			224 85
" Artillery workshops	199 45			199 45
" Iron foundry	3,184 75			3,184 75
" St. Roch post office		1 00		1 00
Peribonka, immigrant shed		84 42		84 42
Richmond, post office, &c		239 10		239 10
Rimouski, post office, &c		25 64		25 64
Roberval, immigration shed		55 78		55 78
Sherbrooke, drill hall	309 00			309 00
" post office, &c	1,999 89	142 22		2,142 11
Sorel, post office, &c		601 61		601 61
St. Henri, post office		365 01		365 01
St. Hyacinthe, drill hall	14,994 40			14,994 40
" post office, &c	13,699 77	190 23		13,890 00
St. Jérôme, post office, &c		85 43		85 43
St. John's, post office, &c	2,626 29	60 00		2,686 29
St. Louis du Mile End, post office	16,001 65			16,001 65
Terrebonne, post office, &c	6,339 41			6,339 41
Thetford Mines, post office, &c	7,674 35			7,674 34
Three Rivers, custom house	2,914 95			2,914 95
" drill hall	3,174 97			3,174 97
" post office	2,733 45			2,733 45
Valleyfield, post office, &c	25,928 36	40 35		25,968 71
Victoriaville, post office, &c		818 97		818 97
West Farnham, post office		12 60		12 60
Quebec, generally			2,068 91	2,068 91
Heating, lighting, water, &c., for all buildings in Quebec (for detail, see page 32)			92,706 29	92,706 29
Totals, Quebec	346,549 02	28,372 88	97,692 90	472,614 80
Ontario.				
Alexandria, post office, &c	10,055 86			10,055 86
Almonte, post office, &c		43 42		43 42
Amherstburg, post office		115 94		115 94
Arnprior, post office, &c		286 80		286 80
Barrie, post office, &c		6 25		6 25
Belleville, post office, &c		1,117 67		1,117 67
Berlin, post office, &c	2,716 67	66 60		2,783 27
Bowmanville, post office, &c	15,009 71	17 05		15,026 76
Brampton, post office, &c		22 25		22 25
Brantford, drill hall	19,937 85			19,937 85

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Continued.				
Brantford, post office, &c	2,948 18	19 90		2,968 08
Bridgburg, post office, &c	8,026 72			8,026 72
Brockville, post office, &c	4,323 96	191 37		4,515 33
" drill hall		15 15		15 15
Burford, drill hall	12,460 31			12,460 31
Carleton Place, post office, &c		3 00		3 00
Cayuga, post office, &c		52 43		52 43
Chatham, armoury	10,575 59			10,575 59
" post office, &c	2,100 40	95 80		2,196 20
Clinton, post office, &c	1,515 16	112 75		1,627 91
Cobourg armoury	20,014 62			20,014 62
" post office, &c		1,232 31		1,232 31
Collingwood, post office, &c		222 50		222 50
Cornwall, post office, &c		93 50		93 50
Deseronto, post office, &c	595 00	72 71		667 71
Fort William, post office, &c	6,070 23	22 45		6,092 68
Galt, post office, &c		421 34		421 34
Gananoque, post office		48 75		48 75
Goderich, post office, &c		81 35		81 35
Guelph, armoury	369 06			369 06
" post office, &c	13,969 05	3 00		13,972 05
Hamilton, drill shed	30,148 47			30,148 47
" examing warehouse	1,281 13			1,281 13
" post office, &c		6,312 14		6,312 14
" " power for elevators			36 00	36 00
Hawkesbury, post office, &c	4,438 53			4,438 53
Ingersoll, post office, &c		41 55		41 55
Kenora, post office, &c	19 90			19 90
Kingston, custom house		512 79		512 79
" field battery stable	173 76			173 76
" military college	8,671 42			8,671 42
" post office		551 16		551 16
Lindsay, post office, &c		31 64		31 64
London, custom house		376 84		376 84
" drill hall and armoury	96,048 36			96,048 36
" military stores	261 66			261 66
" post office	10,082 85	612 07		10,694 92
Napanee, post office, &c		517 44		517 44
Niagara Falls, post office, &c		753 07		753 07
North Bay, post office, &c	3,060 00			3,060 00
Orangeville, post office, &c		22 50		22 50
Orillia, post office, &c		138 97		138 97
Oshawa, post office	5,988 32			5,988 32
Ottawa astronomical observatory	47,819 13			47,819 13
" departmental buildings (Western)	19,244 35			19,244 35
" Dominion archives building	12,357 65			12,357 65
" experimental farm	1,892 18	4,644 63		6,536 81
" government printing bureau	33,826 18			33,826 18
" lovers' walk, retaining wall, &c	10,007 30			10,007 30
" major's hill park			8,236 80	8,236 80
" national art gallery	6,231 00		540 00	6,771 00
" new government coal shed	203 00			203 00
" new workshop	45,086 93			45,086 93
" parliament building	28,625 14			28,625 14
" paving in front of parliament building, &c	9,891 18			9,891 18
" post office	79,998 12			79,998 12
" Rideau Hall	11,598 75	24,573 29		36,172 04
" Rideau Hall, grounds, $5,623.28; snow, $1,449.41; fuel and light, $8,000; watchman, $547.50			15,620 19	15,620 19
" royal mint	49,936 43			49,936 43
" Victoria memorial museum	18,480 33			18,480 33

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Concluded.				
Ottawa, generally: parliament grounds			11,522 88	11,522 88
" " power for elevators, &c.			3,649 37	3,649 37
" " removal of snow			3,599 05	3,599 05
" " repairs and furniture		237,887 22		237,887 22
" " telephone service			14,672 29	14,672 29
Paris, post office, &c		40 00		40 00
Pembroke, post office, &c		1,962 65		1,962 65
Peterboro', drill shed	10,130 80			10,130 80
" custom house		39 98		39 98
" post office	3,000 00	127 64		3,127 64
Petrolia, post office, &c		10 70		10 70
Picton, post office, &c		30 61		30 61
Port Arthur, immigrant shed		10 00		10 00
" post office, &c		600 10		600 10
Port Colborne, post office, &c	1,267 75	13 56		1,281 31
Port Hope, post office, &c		491 32		491 32
Prescott, post office		157 78		157 78
Sandwich, post office, &c	1,963 25			1,963 25
Sarnia, post office, &c	1,713 08			1,713 08
Sault Ste. Marie, post office, &c	27,519 42			27,519 42
Simcoe, post office, &c	2,204 93			2,204 93
Smith's Falls, post office, &c		38 36		38 36
Stratford, drill shed	25,972 73			25,972 73
" post office, &c		559 54		559 54
Strathroy, post office, &c		40 96		40 96
St. Catharines, drill hall	63,818 60			63,818 60
" " post office, &c		101 97		101 97
St. Thomas, post office, &c		120 95		120 95
Toronto, asst. rec. gen. office		889 70		889 70
" barracks	102 00			102 00
" custom house	436 35	1,394 34		1,830 69
" drill hall	752 27	16 80		769 07
" examining warehouse	34,748 87	1,350 16		36,099 03
" post office	10,584 66	4,873 63		15,458 29
" post office, pneumatic tube system	8,227 62			8,227 62
" post office, power for elevators		501 18		501 18
" postal station "A"		961 02		961 02
" postal station "B"		48 49		48 49
" postal station "C"	1,100 00	635 40		1,735 40
" postal station "F"	14,859 10			14,859 10
" Junction, post office	17,824 29			17,824 29
Trenton, post office, &c		56 35		56 35
Walkerton, post office, &c		261 83		261 83
Windsor, post office, &c		164 19		164 19
Wingham, post office, &c	8,816 92			8,816 92
Woodstock, post office, &c		391 27		391 27
" armoury	23,345 93			23,345 93
Ontario, generally			1,292 93	1,292 93
Heating, lighting, water, &c., for all buildings in Ontario (for details, see page 34)			291,292 87	291,292 87
Totals, Ontario	924,429 11	296,748 80	350,963 56	1,572,141 47
Manitoba.				
Brandon, drill shed	3,375 07			3,375 07
" experimental farm	1,040 51	863 89		1,904 40
" emigrant shed		237 65		237 65
Brandon, post office, &c		2,769 07		2,769 07
Dauphin, immigrant shed		110 00		110 00
Emerson, cattle quarantine station	975 00			975 00
" custom house		270 50		270 50

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Manitoba—Concluded.				
Selkirk post office	2 70			2 70
Stonewall, immigrant shed		246 00		246 00
Portage la Prairie, post office		227 44		227 44
Virden, drill shed	4,702 10			4,702 10
Winnipeg, custom house		2,638 78		2,638 78
" Dominion lands office		569 15		569 15
" examining warehouse		405 15		405 15
" immigrant shed	83,843 19	607 01		84,450 20
" military buildings—stores	4,128 42			4,128 42
" magazine	3,051 16			3,051 16
" quarters for non-com. officers	137 48			137 48
" paving	4,948 60			4,948 60
" post office		6,412 89		6,412 89
" post office, power for elevators			36 37	36 37
" post office, new buildiug	187,340 37			187,340 37
Manitoba generally			149 11	149 11
Heating, lighting, water, &c., for all buildings in Manitoba (for details see page 34)			24,430 98	24,430 98
Totals, Manitoba	293,544 60	15,357 53	24,616 46	333,518 59
North-west Territories.				
Battleford, Dominion lands office		571 15		571 15
Cattle quarantine, corrals at various points	11,614 04			11,614 04
Calgary, court house, &c		454 00		454 00
" immigrant building		202 52		202 52
" post office, &c	947 87	92 36		1,040 23
Carnduff, court house		300 77		300 77
Craik, immigrant shed	1,025 55			1,025 55
Davidson, immigration shed		129 86		129 86
Duck Lake, immigrant shed		45 00		45 00
Edmonton, court house		35 75		35 75
" Dom. lands and registry office		975 72		975 72
" immigrant shed		21 40		21 40
" jail	34,999 80			34,999 80
" post office		43 75		43 75
Indian Head, experimental farm		840 34	7 80	848 14
Lethbridge, court house and custom house		112 10		112 10
" immigration building	957 20	26 85		984 05
" post office		34 20		34 20
Lloydminster, immigrant shed	2,512 46	16 00		2,528 46
Macleod, court house	1,572 00	779 25		2,351 25
Medicine Hat, court house		379 08		379 08
Moose Jaw, post office	7,732 59			7,732 59
Moosomin, court house	517 89			517 89
Prince Albert, court house and post office	39,516 87			39,516 87
" Dominion lands registry office		76 95		76 95
" immigrant shed		24 00		24 00
Qu'Appelle, immigrant shed	462 45			462 45
Red Deer, court house and Dominion lands office	7,537 14			7,537 14
Regina, court house		491 32		491 32
Regina, Dominion lands and registry office		1,748 18		1,748 18
" immigrant building	1,739 87			1,739 87
" Lieut.-Governor's residence	1,051 91	1,657 59		2,709 50
Regina, N. W. M. P. barracks	2,930 00			2,930 00
" post office		1,189 93		1,189 93
Rosthern, immigrant shed		84 00		84 00
Saltcoats, immigrant shed		142 40		142 40

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs and Furniture.	Staff and Maintenance.	Total.
PUBLIC BUILDINGS—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
North-west Territories—Concluded.				
Saskatoon, post office	2,067 55			2,067 55
Strathcona, immigrant shed		183 25		183 25
Wolseley, court house		242 90		242 90
Yorkton, court house, and jail		701 96		701 96
Heating, lighting, water, &c., for all buildings in N.W.T. (for details see page 35)			24,973 27	24,973 27
Totals, N. W. Territories	117,045 19	11,570 38	24,973 27	153,768 84
British Columbia.				
Agassiz, experimental farm	900 36	58 43		958 79
Atlin, post office, &c.		53 70		53 70
Fernie, post office	190 05			190 05
Gateway, cattle quarantine station	731 25			731 25
Huntingdon, custom house		407 21		407 21
Kamloops, post office, &c.		585 65		585 65
Midway, cattle quarantine station	583 75			583 75
Nanaimo, post office, &c.	12,073 68	167 25		12,240 93
Nelson, cattle quarantine station	1,058 20			1,058 20
" post office, &c.		401 98		401 98
New Westminster, post office		204 41		204 41
Rossland, post office, &c.	1,767 87			1,767 87
" armoury	21,212 03			21,212 03
Vancouver, custom house		864 14		864 14
" examining warehouse		26 75		26 75
" post office	2,608 86			2,608 86
" post office (new building)	1,822 04			1,822 04
Victoria, old custom house		3,178 58		3,178 58
" drill hall	368 50			368 50
" marine hospital		5 00		5 00
" post office	947 70	1,560 28		2,507 98
" post office (power for elevators)			218 12	218 12
" old post office		189 74		189 74
Williams' Head, quarantine station	19,500 00		387 50	19,887 50
British Columbia, generally			159 57	159 57
Heating, lighting, water, &c., for all buildings in British Columbia, (for detals see page 36)			26,767 90	26,767 90
Totals, British Columbia	61,155 43	10,311 98	27,533 09	99,000 50
Yukon Territory.				
White Horse, post office, &c.	5,368 37	697 21		6,065 58
Heating, lighting, water, &c., for all buildings in Yukon Territory, (for details see page 36)			91,063 08	91,063 08
Totals, Yukon Territory	5,368 37	697 21	91,063 08	97,128 66
Public Buildings Generally.				
Salaries of clerks of works and assistants			12,177 36	12,177 36
Printing, stationery, instruments, travelling, &c.,			11,169 46	11,169 46
Totals, public buildings generally			23,346 82	23,346 82

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia.					
Abram's River		118 73			118 73
Advocate Harbour		1,724 22			1,724 22
Apple River wharf		19 81			19 81
Bailey Brook wharf		1,471 46			1,471 46
Barachois		1,499 80			1,499 80
Barrington Passage	483 72	1,999 90			2,483 62
Bass River wharf			1,200 03		1,200 03
Battery Point wharf		2,062 21			2,062 21
Bayfield			4,147 06		4,147 06
Bear Cove		77 67			77 67
Beckerton		2,192 03			2,192 03
Belliveau Cove			576 91		576 91
Big Harbour (Port Bevis)		3,989 38			3,989 38
Big Pond		7,900 00			7,900 00
Boularderie Centre		349 87			349 87
Breton Cove		6,003 04			6,003 04
Broad Cove Marsh			999 85		999 85
Cape Sable Island, east end		2,606 17			2,606 17
Caribou Island		1,224 44			1,224 44
Chegoggin pier		1,498 58			1,498 58
Cheticamp (Eastern Harbour)	2,395 64				2,395 64
Cheticamp Point-wharf		13,093 96			13,093 96
Cheverie breakwater			800 02		800 02
Church Point			2,100 00		2,100 00
Clam Harbour			287 10		287 10
Clark's Harbour		2,993 40			2,993 40
Country Harbour		140 66			140 66
Cow Bay (Port Morien)			12,695 09		12,695 09
Cow Bay Run breakwater		2,000 00			2,000 00
Cribbin's Point			2,127 22		2,127 22
Cunningham's Point		103 58			103 58
D'Escousse wharf			899 78		899 78
Devils Island		4,144 28			4,144 28
Digby pier			1,440 60		1,440 60
East Chezzetcook		4,093 24			4,093 24
East Jeddore wharf		928 07			928 07
Eatonville			174 26		174 26
Economy wharf		1,000 00			1,000 00
Finlay's Point wharf		984 51			984 51
Forbes Point			241 80		241 80
Fort Lawrence, landing pier		12,798 50			12,798 50
Freeport		5,034 92			5,034 92
French Village		2,037 67			2,037 67
Fruids Point wharf		59 40			59 40
Gabarus		2,032 44			2,032 44
Georgeville wharf		1,999 62			1,999 62
Grand Etang harbour		52 75			52 75
Grand Narrows wharf			1,435 49		1,435 49
Grand River		485 35			485 35
Granite Village		782 64			782 64
Green Cove		492 50			492 50
Grosses Coques			917 70		1,917 70
Gull Island		1,580 96			1,580 96
Halifax graving dock				10,000 00	10,000 00
Habitant River (Canning)		944 82			944 82
Hall's Harbour		1,140 52			1,140 52
Hampton		1,198 06			1,198 06
Hantsport			400 00		400 00
Harriman's Cove		1,208 02	39 84		1,247 86
Iona wharf		12,078 92			12,078 92
Indian Harbour		1,160 50			1,160 50
Irish Cove			1,000 04		1,000 04
Island Point, wharf			568 92		568 92

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts
Nova Scotia—Con,					
Janvrin's Island		1,974 82			1,974 82
Kingsport		163 01			163 01
L'Ardoise, breakwater		18,583 00			18,583 00
Larry's River, breakwater		3,382 52			3,382 52
Lingan, beach protection		999 98			999 98
Litchfield		3,000 00			3,000 00
Little Brook			2,000 13		2,000 13
Little Harbour (or Arnold Pt.)		401 05			401 05
Little Judique		985 63			985 63
Liverpool	562 12		50 00		612 12
Livingston's Cove			2,211 30		2,211 30
Lockeport	959 63		924 73		1,884 36
Long Point		1,830 96			1,830 96
McKay's Point, wharf		5,637 30			5,637 30
McNair's Cove		5,221 09			5,221 09
Mabou Bridge wharf		998 18			998 18
Mabou Harbour	7,269 82				7,269 82
Malagawatch		300 00			300 00
Malagash		10 41			10 41
Main a Dieu, breakwater		296 49			296 49
Malignant Cove		2,813 95			2,813 95
Margaree Harbour		1,247 96			1,247 96
Margaree Island		47 91			47 91
Margaretville			2,586 06		2,586 06
Melborne wharf		25 38			25 38
Meteghan (Cove)		2,000 00			2,000 00
Meteghan River			333 16		333 16
Middle East Pubnico		3,531 67			3,531 67
Middle River		999 87			999 87
Mill Cove		27 47			27 47
Monk's Head			179 78		179 78
Morden			49 99		49 99
Musquodoboit		74 26			74 26
Neil's Harbour, breakwater		952 79			952 79
New Campbellton(Kelly'sCove)		182 46			182 46
Newellton			836 56		836 56
Newport Landing		1,685 74			1,685 74
Noel			1,006 54		1,006 54
North Gut, St. Anns (Morrison's Point)		1,991 38			1,991 38
North River, St. Anns			331 40		313 40
North Sydney	7,479 23				7,479 23
Ogden's Pond		499 86			499 86
Ogilvie		1,870 30			1,870 30
Oyster Pond		449 69			449 69
Parrsboro'		3,180 15			3,180 15
Pembroke, breakwater		4,193 55			4,193 55
Petit de Grat		928 64			928 64
Pickett's Pier		2,104 62			2,104 62
Pictou Light Beach		598 83			598 83
Pictou Bar	1,875 32				1,875 32
Pictou Market Wharf	1,598 13				1,598 13
Pleasant Bay		104 65			104 65
Plympton			1,030 58		1,030 58
Porter's Lake		4,347 29	92 78		4,440 07
Port au Pique		1,884 23			1,884 23
Port Dufferin			461 16		461 16
Port George breakwater		199 50			199 50
Port Greville			6,649 08		6,649 08
Port Hawkesbury		12,517 54			12,517 54
Port Hood		19,942 43	1,799 86		21,742 29

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia—Con.					
Port La Tour, breakwater		2,675 96			2,675 96
Port Lorne			999 93		999 93
Port Maitland		1,465 72			1,465 72
Port Mouton			106 27		106 27
Sandy Cove, breakwater		2,927 48			2,927 48
Saulnierville			1,999 29		1,999 29
Scott's Bay		998 84			998 84
Seaside			177 00		177 00
Sherrow's Channel	7,805 22				7,805 22
Shelburne	3,899 38				3,899 38
Short Beach		1 85			1 85
Skinner's Cove		3,225 14			3,225 14
Spry Bay wharf		1,500 00			1,500 00
Summerville		1,532 76			1,532 76
Swim's Point wharf		307 30			307 30
Sydney quarantine station		1,673 71			1,673 71
Tenecape breakwater		6,800 00			6,800 00
Three Fathom Harbour		40 33			40 33
Trout Cove		389 85			389 85
Victoria Beach		60,640 23	182 39		60,822 62
Wallace			3,980 26		3,980 26
Wedge Point		2,367 47			2,367 47
West Arichat		848 40	499 97		1,348 37
West Bay, Richmond (south side)		1,335 00			1,335 00
West Berlin		1,304 66			1,304 66
West Chezzetcook			2,931 79		2,931 79
White Head		980 23			980 23
White's Cove		1,004 01			1,004 01
Whitewater			404 24		404 24
Windsor Harbour		53 07			53 07
Whycocomagh		499 98			499 98
Wolfville			2,643 91		2,643 91
Yarmouth Harbour	325 98				325 98
Yarmouth Bar			948 32		948 32
Generally, N.S.				2,977 47	2,977 47
Totals, Nova Scotia	34,654 19	314,335 15	68,450 19	12,977 47	430,417 00
Prince Edward Island.					
Bay Fortune breakwater			449 04		449 04
Bay View		673 79			673 79
Beach Point		471 27			471 27
Belfast		1,749 40			1,749 40
Campbell's Cove			471 09		471 09
Canoe Cove		988 18			988 18
Cascumpec harbour			29 60		29 60
China Point		294 77			294 77
Cove Head harbour			100 00		100 00
Georgetown	1,328 80				1,328 80
Grahams Pond			499 90		499 90
McPherson's Cove		2,645 58			2,645 58
Miminigash		1,438 54			1,438 54
Mink River Pier			300 61		300 61
Montague River	3,283 98				3,283 98
Morell	3,107 59				3,107 59
New London		5,461 25	749 00		6,210 25
North Cardigan Pier		279 46			279 46
Panmure Island		1,285 92			1,285 92
Point Prim wharf		29 32			29 32

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Prince Edward Island—Con.					
Port Selkirk			698 70		698 70
Richmond Bay, Grand River Ferry		1,506 72			1,506 72
Rustico Harbour, Robinson's Island breakwater		1,457 27			1,457 27
Rustico Harbour, north b'water	738 47		191 95		930 42
St. Peter's Bay breakwater		193 74			193 74
Savage Harbour		1,006 00			1,006 00
Souris, Knight's Point		4,598 37			4,598 37
Summerside harbour		160 00			160 00
Tignish, southern breakwater		42 09			42 09
West Point			491 55		491 55
Wood Islands	9,403 45	249 93			9,653 38
Harbours generally (P.E.I.)			1,710 00	1,367 93	3,077 93
Totals, P.E. Island	17,862 29	24,531 60	5,691 44	1,367 93	49,453 26
New Brunswick.					
Anderson's Hollow			1,597 90		1,597 90
Bathurst			25 00		25 00
Belliveau, wharf			298 93		298 93
Black Brook (Loggieville)		3,500 24			3,500 24
Black River wharf			303 79		303 79
Buctouche wharf			1,885 17		1,885 17
Buctouche channel		2,027 17			2,027 17
Burnt Church			600 02		600 02
Cambellton, ferry wharf		573 93			573 93
Campbellton, wharf extension and repairs	620 96	41,732 90			42,353 86
Campobello (Wilson's Beach)		1,800 00			1,800 00
Cape Tormentine		19,998 34			19,998 34
Caraquet		31,539 00			31,539 00
Chance Harbour		2,875 54			2,875 54
Chatham	1,957 50				1,957 50
Chockfish, extension of training pier		1,189 50			1,189 50
Clifton (Stonehaven)			2,499 23		2,499 23
Dalhousie, harbour improvem't		30 42			30 42
Dipper Harbour		4,639 65			4,639 65
Durham		146 85			146 85
Edgett's Landing			3,000 00		3,000 00
Fox Creek			999 80		999 80
Grand Lake, Maquapit and French Lake	1,999 31				1,999 31
Great Salmon River breakwater, &c		183 63			183 63
Hopewell Cape			1,999 92		1,999 92
Hopewell Hill		691 09			691 09
L'Etang Harbour			252 45		252 45
Little Salmon River		511 96			511 96
Lord's Cove, Deer Island		212 38			212 38
Mace's Bay		349 20			349 20
Miramichi River (N.W. branch)	4,740 00				4,740 00
Miscou Harbour, wharf		3,490 30			3,490 30
Mud Cove		491 57			491 57
Neguac	275 00				275 00
North Head Grand Manan breakwater wharf		164 09			164 09
Partridge Island	2,227 59		900 39		3,127 98
Petit Rocher, breakwater		7,195 91			7,195 91

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
New Brunswick—Con.					
Point du Chene	5,874 71		3,998 06		9,872 77
Point Wolfe			497 35		497 35
Quaco		1,844 11			1,844 11
Richibucto		1,002 42			1,002 42
River St. John and tributaries—					
Grand Falls 573 84					
Green River 50 00					
Iroquois River 225 03					
Quisibus River 183 75					
St. Francis River 200 00					
Salmon River 150 00					
Tobique River 2,273 12					
Trout River 150 00					
Touladie River 200 00					
Upper St. John (St. Hilaire) 193 50					
Generally 909 34					
		5,108 58			5,108 58
River Upsalquiteb		470 54			470 54
St. John Harbour (Negro Point breakwater)		19,994 91			19,994 91
St. John Harbour—dredging	20,156 01				20,156 01
St. John Harbour, protection works at base Fort Dufferin			974 95		974 95
Shippegan Harbour	10,075 47	7,755 42			17,830 89
Shippegan (wharf at Lameque)		3,999 80			3,999 80
Shippegan (wharf at terminus of Caraquet Ry)		26 83			26 83
Traverse (Restigouche Co.)	1,564 70				1,564 70
Tynemouth Creek		499 80			499 80
Upper Salmon River (Alma Pier)		1,766 50			1,766 50
Washedemoak Lake	3,467 95				3,467 95
Westfield	362 19				362 19
Generally, N.B.				2,977 48	2,977 48
Totals, New Brunswick	53,321 39	165,812 58	19,832 96	2,977 48	241,944 41
Quebec.					
Anse à Beaufils		1,548 48			1,548 48
Anse aux Gascons		11,612 50			11,612 50
Anse aux Griffons		1,608 26			1,608 26
Anse du Cap		2,111 04			2,111 04
Anse St. Jean		1,191 99			1,191 99
Baie des Peres (Ville Marie)		521 76			521 76
Baie St. Paul, repairs to wharf at Cap aux Corbeaux			1,789 77		1,789 77
Barachois de Malbaie		4,264 41			4,264 41
Beauharnois	2,670 00				2,670 00
Belœil, guide piers	134 00		676 68		810 68
Berthier (en bas)			791 04		791 04
Bic, pier at Pointe à Côté		5,044 59			5,044 59
Bois Brulé, training pier		1,161 02			1,161 02
Bonaventure, East		12,722 50			12,722 50
Bromptonville		1,970 59			1,970 59
Calumet (Co. Argenteuil)	4,502 35				4,502 35
Cacouna		1,249 29			1,249 29

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Con.					
Canton Fabre, Lake Temiskaming		1,329 03			1,329 03
Caplan		11,510 40			11,510 40
Cap Rouge (Gaspé)			251 90		251 90
Cap Santé			2,498 89		2,498 89
Chambord		8,066 67			8,066 67
Champlain		8,163 62			8,163 62
Charlemagne	3,104 00				3,104 00
Chateau Richer		7,160 86			7,160 86
Como	952 00				952 00
Coteau du Lac			710 75		710 75
Chicoutimi wharf			190 42	175 22	365 64
Corner-of-the-Beach (Gaspé)			323 53		323 53
Coteau Landing		9,001 48			9,001 48
Crane Island, south side			3,181 73		3,181 73
Cross Point			99 95		99 95
Deschambault		9,828 76			9,828 76
Desjardins, Alumette Island		10,957 42			10,957 42
D'Israeli Landing		4,990 62			4,990 62
Doucet's Landing	20,034 42				20,034 42
Douglastown		10,349 86			10,349 86
East Templeton			1 77		1 77
English River		4,823 55			4,823 55
Escoumains		8,420 00			8,420 00
Father Point, landing pier		22,115 58			22,115 58
Gatineau Point			2,171 04		2,171 04
Georgeville			1,016 70		1,016 70
Graham	2,391 10				2,391 10
Grandes Bergeronnes		1,762 58			1,762 58
Grande Valle		15,098 90			15,098 90
Grands Mechins		3,597 36			3,597 36
Grand Pabos			73 80		73 80
Grondines		7,500 57			7,500 57
Grenville	3,856 60				3,856 60
Grosse Isle, quarantine wharf		1,211 48			1,211 48
Hull wharf			15 56	167 50	183 06
Isle aux Nois (Barbotte River)	857 76				857 76
Isle Bizard and St. Genevieve, piers and spans			5,113 40		5,113 40
Isle aux Coudres			1,937 27		1,937 27
Isle Perrot			40 41		40 41
Isle Verte			800 00		800 00
Kamouraska		1,499 02			1,499 02
Knowltons Landing			60 99		60 99
Lac Labelle, piers		1,225 27			1,225 27
Lake Megantic, pier			1,149 03		1,149 03
Lake St. John, wharfs generally				2,535 75	2,535 75
Lake Nominingue		2,137 20			2,137 20
Lanoraie			674 20		674 20
L'Anse à Giles		987 94			987 94
L'Anse à Ilot			397 20		397 20
Laprairie, ice piers, &c		25,494 07			25,494 07
Lavaltrie		24 35			24 35
Les Eboulements		25 40			25 40
Les Ecureuils		3,396 22			3,396 22
Levis, graving dock				13,301 54	13,301 54
Le Tableau, Descente des Femmes, wharf on River Saguenay		987 24			987 24
L'Isle d'Alma, removal of rocks		995 58			995 85

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Con.					
Little Pabos		1,326 78			1,326 78
Lotbiniere		10,719 99			10,719 99
Lower St. Lawernce—					
Anse Aspirot			100 00		100 00
Bon Desir			189 50		189 50
Breche à Menon			25 00		25 00
Cap Chatte			90 00		90 00
Cape Cove			197 50		197 50
Cap D'Espoir			25 00		25 00
Cap Rouge			28 15		28 15
Chlorydorme			10 75		10 75
Escoumains			300 46		300 46
Grand River			150 00		150 00
Grand Pabos			100 00		100 00
Grand Tourelle			51 00		51 00
Hopetown Beach			100 00		100 00
Jersey Cove			297 60		297 60
Little Pabos			25 00		25 00
Little River			273 25		273 25
Petite Bergeronne			824 37		824 37
Petite Tourelle			50 00		50 00
Petite Vallée			50 00		50 00
Port Daniel			99 83		99 83
Riviere Ste. Anne			36 00		36 00
Riviere St. Godefroi			100 00		100 00
St. Georges de Malbaie			26 75		26 75
Magdalen Islands, breakwaters					
Anse au Moulin		23 63			23 63
Bassin		3,890 98			3,890 98
Grindstone		9,298 69			9,298 69
Pointe à Elie		6,389 89			6,389 89
Generally				394 99	394 99
Magog			3,241 13		3,241 13
Maguasha		3,695 00			3,695 00
Maria Pier			502 50		502 50
Masson		5,063 60			5,063 60
Matane			1,878 36		1,878 36
Mille Vaches		1,003 14			1,003 14
Mistook (Delisle) wharf		5,001 05			5,001 05
Mont Louis		3,003 25			3,003 25
Montmagny wharf		32 96			32 96
Montmorency Falls		6,278 82	230 00		6,508 82
Montreal Harbour		74,442 69			74,442 69
Murray Bay	883 99	3,081 29			3,965 28
New Carlisle		4,066 89			4,066 89
Newport breakwater		4,450 96	31 01		4,481 97
New Richmond breakwater		13,245 37			13,245 37
Nicolet, jetty			8,830 53		8,830 53
Nicolet River, dredging	1,490 00				1,490 00
Notre Dame du Portage		8,043 70			8,043 70
Paspebiac, landing pier		16,641 24			16,641 24
Pentecoste	5,565 12		100 00		5,665 12
Peel Head, Missisquoi Bay		1,758 34			1,758 34
Percé wharf (North Cove)		1,080 50			1,080 50
Percé, South Beach		988 45			988 45
Petites Bergeronnes			898 58		898 58
Petite Riviere Peribonka			627 76		627 76
Pierreville		8,369 61			8,369 61
Pointe aux Esquimaux		1,726 78			1,726 78

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Con.					
Pointe aux Trembles (Portneuf Co.)		9,958 17			9,958 17
Pointe à Valois			204 78		204 78
Pointe St. Pierre, breakwater		380 00			380 00
Port Daniel		11,013 88			11,013 88
Portneuf		1,000 00			1,000 00
Quebec Harbour, improvem'ts	3,480 16	149,990 67			153,470 83
Rigaud	15,928 28				15,928 28
Repentigny wharf		6,498 95			6,498 95
Rimouski wharf		26,576 49			26,576 49
Riviere à la Pipe wharf		961 80			961 80
River aux Renards		19,990 15			19,990 15
River Chauteauguay	5,295 00				5,295 00
River des Vases, wharf		790 18			790 18
River Ottawa (Blanche shoals)	4,134 00				4,134 00
Riviere du Lievre Lock		24,144 55	726 72	4,363 65	29,234 92
Riviere du Loup (Fraserville)		9,191 00	4,204 42		13,395 42
Riviere du Loup (en haut)	9,862 04				9,862 04
Riviere Jesus	4,185 87				4,185 87
Riviere L'Assomption	10,408 24				10,408 24
Riviere Maskinongé	9,717 09				9,717 09
Riviere Ouelle	2,256 51		2,981 68		5,238 19
Riviere Saguenay	31,094 78		30 00		31,124 78
Riviere St. Louis	6,268 28			139 00	6,407 28
Riviere St. Maurice, Chute Monte-à-Peine			999 99		999 99
Riviere St. Maurice Channel, between Grandes Piles and La Tuque	7,953 02				7,953 02
do dam at Grandes Piles		4,850 57			4,850 57
Riviere St. Maurice, mouth	17,293 90				17,293 90
Riviere Touladie		2,500 00			2,500 00
Riviere Verte, wharf		5,499 61			5,499 61
Roberval	3,065 83				3,065 83
Ruisseau Leblanc			300 00		300 00
Sacré-Cœur		8,538 82			8,538 82
St. Aimé (Co. Richelieu)	473 00				473 00
St. Alexis, Baie des Ha Ha		5,627 23			5,627 23
St. Alphonse de Bagotville		1,585 86	326 56		1,912 42
St. André de Kamouraska			2,460 46		2,460 46
St. Andrews (Co. Argenteuil)	5,982 75				5,982 75
Ste. Anne des Monts		1,820 67			1,820 67
Ste. Anne de la Pocatiere		4,582 42			4,582 42
Ste. Anne de la Pérade			1,997 77		1,997 77
Ste. Anne de Sorel		8,881 04			8,881 04
Ste. Anne du Saguenay, wharf		2,387 87			2,387 87
St. Antoine (Co. Vercheres)	419 88				419 88
St. Blaise		2,610 01			2,610 01
St. Charles Borromée		996 95			996 95
St. Denis (Co. St Hyacinthe)	525 00				525 00
Ste. Emélie			537 09		537 09
Ste. Famille, I.O.		15,111 88			15,111 88
St. Félicien (Lake St. John)	306 57		640 49		947 06
Ste. Fidele wharf		3,162 03			3,162 03
St. Francois de Sales		6,947 90			6,947 90
St. Francois, I.O.		184 21			184 21
St. Fulgence		4,993 37			4,993 37
St. Gédéon Islands wharf		7,525 62			7,525 62
St. Godefroi de Nouvelle		18,508 46			18,508 46

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Con.					
St. Ignace de Loyola		1,797 39			1,797 39
St. Irénée, wharf		907 97			907 97
St. Jean, I.O.			956 79		956 79
St. Jean des Chaillons wharf	3,427 25	893 20			4,320 45
St. Jean Port Joli			5,999 59		5,999 59
St. Jérome (Lake St. John) wharf		727 73			727 73
St. Laurent, I.O.			574 87	317 05	891 92
St. Mathias wharf			480 31		480 31
St. Michel de Bellechasse	6,988 58		1,548 66		8,537 24
St. Ours	134 00				134 00
St. Siméon		3,088 59			3,088 59
St. Roch des Aulnaies		2,499 99			2,499 99
Seven Island wharf		49,881 92			49,881 92
Shegawake		1,781 46			1,781 46
Sorel, deep water wharf		435 30			435 30
Sorel, ice piers		6,016 89			6,016 89
Terrebonne	2,103 46	6,946 44			9,049 90
Three Rivers harbour		39,201 35			39,201 35
Trois Lacs or Flints Landing			118 12		118 12
Trois Pistoles breakwater		3,742 32			3,742 32
Vercheres		3,010 69			3,010 69
Ville Marie (Lake Temiscaming.)	868 19				868 19
Yamaska lock and dam			1,730 58	949 72	2,680 30
Yamaska River	12,874 68				12,874 68
Generally	46,937 14			18,517 09	65,454 23
Totals, Quebec	258,424 84	913,211 68	66,095 95	40,861 51	1,278,593 98
Ontario.					
Amherstburg—dredging	4,271 22				4,271 22
Barrie		2,600 00			2,600 00
Barrys Bay (Madawaska River)		4,770 74			4,770 74
Bayfield	2,828 83		322 30		3,151 13
Baysville		1,219 33			1,219 33
Beaverton		2,975 46			2,975 46
Belle River			2,413 28		2,413 28
Blanche River (Lake Temiscaming)		181 30			181 30
Blind River, wharf	9,212 00	1,991 71			11,203 71
Bowmanville			2,600 00		2,600 00
Bracebridge wharf		6,960 91			6,960 91
Bronte		3,532 81			3,532 81
Burk's Falls			287 00		287 00
Burlington Channel & bridge		17,462 50	9,863 57	3,679 21	31,005 28
Burleigh		1,445 41			1,445 41
Cape Croker		2,340 70			2,340 70
Cobourg	122 50		3,000 00		3,122 50
Colborne (Lakeport)			2,499 51		2,499 51
Collingwood	97,214 05				97,214 05
Cornwall			88 07		88 07
Cumberland	320 00	6,978 50			7,298 50
Depot Harbour		99,110 34			99,110 34
Echo Bay		5,015 25			5,015 25
Fort William (Kaministiquia River)	147,134 45			1,375 00	148,509 45
Gananoque	4,442 05				4,442 05
Georgian Bay, Pte. au Baril route		3,729 54			3,729 54
Goderich	2,502 66	32,644 66			35,147 32

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Con.					
Gore's Landing		999 88			999 88
Grand Bend, breakwater		11,378 00			11,378 00
Grand River (Dunnville)	17,376 00				17,376 00
Haileybury (Lake Temiscam'g)		6,008 74			6,008 74
Hamilton	3,036 95				3,036 95
Hawkesbury	7,799 04				7,799 04
Hilton, St. Joseph Island			597 26		597 26
Honora		8,074 00			8,074 00
Holland River			512 48		512 48
Huntsville		489 90			489 90
Indian River	1,269 31				1,269 31
Kingston	2,631 46				2,631 46
Kingston graving dock				5,583 39	5,583 39
Kincardine	2,040 00		999 70		3,039 70
Lakes Simcoe and Couchiching (Narrows)		25 50			25 50
Leamington			4,134 43		4,134 43
Lion's Head			521 00		521 00
Little Beaver Creek	392 00				392 00
Little Current	38,124 50				38,124 50
Mallorytown		999 04			999 04
L'Orignal			43 78		43 78
Matchedash Bay		777 85			777 85
Meaford		17,408 72	3,097 09		20,505 81
Midland	21,621 27	15,250 00	1,228 10		38,099 37
Mitchell's Bay	800 00				800 00
McCracken's Landing			781 87		781 87
Newcastle			7,000 00		7,000 00
New Liskeard (Lake Temiscaming)	2,712 02				2,712 02
Oakville			781 48		781 48
Oliphant		976 17			976 17
Oshawa			700 00		700 00
Owen Sound	25,730 53	7,860 55			33,591 08
Parry Sound		227 70			227 70
Pembroke		43,105 50			43,105 50
Petewawa wharf		5,995 87			5,995 87
Penetanguishene	11,544 42		1,199 10		12,743 52
Pike Creek		3,149 43			3,149 43
Point Edward (Sarnia)	24,201 29				24,201 29
Port Arthur	39,215 66		4,988 36		44,204 02
Port Bruce		975 54			975 54
Port Burwell	18,719 45	11,857 29			30,576 74
Port Colborne		121,187 28			121,187 28
Port Dover		9,190 50			9,190 50
Port Elgin	1,994 00				1,994 00
Port Hope	477 03		3,999 99		4,477 02
Port Perry	1,364 46				1,364 46
Port Rowan			9 13		9 13
Port Stanley	8,609 20	9,657 93			18,267 13
Prescott	1,946 00				1,946 00
Richard's Landing			99 91		99 91
River St. Lawrence (dredging at Wolf Island)	1,035 36				1,035 36
Riviere aux Puces			215 00		215 00
River Otonabee	7,269 23				7,269 23
River Ottawa, near Hawkesbury	864 03				864 03
Robbins Landing			50 00		50 00
Rondeau Harbour	5,134 59	9,582 16			14,716 75
Sarnia	1,200 00				1,200 00

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Con.					
Saugeen River		6,407 18			6,407 18
Sault Ste. Marie		54,710 45			54,710 45
Sault Ste. Marie, compensation to W. H. Plummer, &c		7,000 00			7,000 00
Southampton		599 85			599 85
Severn River		5,379 17			5,379 17
Shrewsbury (Rondeau)		3,058 79			3,058 79
St. Joseph (Co. Huron)		275 00			275 00
Stokes Bay Wharf		7,478 61			7,478 61
Sydenham River	929 80		1,996 40		2,926 20
Tenby Bay (St. Joseph Isld.)		711 68			711 68
Thessalon		18,026 87			18,026 87
Thora Island (Lake Simcoe)		394 42			394 42
Thornbury			1,500 08		1,500 08
Toronto Harbour, eastern entrance		28,133 45			28,133 45
Toronto Harbour, extension of breakwater		1,697 58			1,697 58
Treadwell		5,074 76			5,074 76
Trenton Harbour	5,304 33				5,304 33
Trent River, near Trenton	3,532 50				3,532 50
Washego			9 00		9 00
Wendover			119 62		119 62
Whitby	13,992 67				13,992 67
Wiarton		0 87			0 87
Generally	6,547 76			8,437 37	14,985 13
Totals, Ontario	546,240 47	616,307 54	55,657 51	19,074 97	1,237,280 49
Manitoba.					
Arnes		5,463 22			5,463 22
Gimli			5,142 38		5,142 38
Delta	953 97				953 97
Lake Dauphin, lowering		814 29			814 29
Lake Frances (outlet)	6,258 45	3,735 93			9,994 38
Lake Manitoba (outlets)	2,378 26				2,378 26
Mossy River (mouth)	4,514 82				4,514 82
Red River (mouth)	16,501 64				16,501 64
Selkirk	1,108 04	7,768 40			8,876 44
St. Andrew's Rapids (Red River)		4,014 33			4,014 33
Generally				2,977 12	2,977 12
Totals, Manitoba	31,715 18	21,796 17	5,142 38	2,977 12	61,630 85
North-west Territories.					
Lesser Slave River		572 55			572 55
Saskatchewan River (near Pr. Albert)		944 51			944 51
Totals, N. W. Territories		1,517 06			1,517 06
British Columbia.					
Anderson Lake		1,231 53			1,231 53
Chilliwack		1,999 63			1,999 63
Columbia River at Arrowhead		5,441 77			5,441 77
Columbia River at Revelstoke		9,267 83			9,267 83

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
HARBOURS AND RIVERS —*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
British Columbia—Con.					
Columbia River above Revelstoke		2,999 00			2,999 00
Columbia River above Golden		4,382 85			4,382 85
Columbia River below Golden		4,584 21			4,584 21
Columbia River between Upper and Lower Arrow Lakes	7,983 18		1,502 31		9,485 49
Coquitlam River		2,391 72			2,391 72
Duncan River		1,957 32			1,957 32
Esquimalt, graving dock				12,936 50	12,936 50
Fraser River	34,973 97	24,990 42			59,964 39
Ladysmith		3,976 98			3,976 98
Langley		1,988 77			1,988 77
Kennedy Lake		1,256 50			1,256 50
Kootenay River		1,459 17			1,459 17
Mount Lehman wharf		1,976 85			1,976 85
North Thompson River		6,412 02			6,412 02
Quatsino City		125 38			125 38
Salmon River		4,995 02			4,995 02
Sidney Harbour		6,252 01			6,252 01
Skeena River		5,404 44			5,404 44
Spallumcheen River		1,927 22			1,927 22
Thetis and Kuper Island Passage	5,075 55				5,075 55
Victoria Harbour	16,888 69				16,888 69
William's Head, quar. station, wharf, &c			8,390 40		8,390 40
Generally				1,777 81	1,777 81
Totals, British Columbia	64,921 39	95,020 64	9,892 71	14,714 31	184,549 05
Yukon Territory.					
Lewis and Yukon Rivers		6,291 13			6,291 13
Totals, Yukon		6,291 13			6,291 13
Harbours and Rivers Generally.					
General expenses of staff, &c.	5,501 59			8,833 76	14,335 35
DREDGES AND DREDGING PLANT.					
Maritime Provinces		223,150 20	(*a*)		223,150 20
Ontario and Quebec		109,624 33	66,125 79		175,750 12
Manitoba		13,284 87	4,934 70		18,219 57
British Columbia		24,304 83	4,799 19		29,104 02
Totals, Dredges and Dredging plant		370,364 23	75,859 68		446,223 91
SLIDES AND BOOMS					
River Saguenay		24,938 16			24,938 16
River St. Maurice		40,200 72	14,060 53	46,496 18	100,757 43
River Richelieu (Belœil)				85 45	85 45

(*a*) Cost of repairs ($12,625.78) apportioned with dredging, see various harbours in Maritime Provinces.

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
SLIDES AND BOOMS—*Con.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ottawa District—					
Ottawa River			7,736 54		7,736 54
Riv. du Lievre		875 00			875 00
Gatineau River			8,266 36	4,157 29	12,423 65
Coulonge River			2,575 46		2,575 46
Black River			1,957 89		1,957 89
Dumoine River			5,475 01		5,475 01
Madawaska River			1,275 63		1,275 63
Petewawa River			3,106 91		3,106 91
Trent and Newcastle District			1,415 99	2,194 97	3,610 96
Collection Slide and Boom Dues Generally				4,249 38	4,249 38
Totals, Slides and Booms		66,013 88	45,870 32	83,474 75	195,358 95

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
ROADS AND BRIDGES.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec and Ontario.				
Bryson Bridge (Ottawa River)		2,233 39		2,233 39
Ottawa, Laurier Bridge	2,160 78			2,160 78
Ottawa City bridges and streets maintained by Government—				
Chaudiere bridges and approaches	3,162 63	2,379 26		5,541 89
Sappers and Dufferin bridges and Wellington street	2,887 73		6,036 87	8,924 60
Lighting all the above			2,440 00	2,440 00
Portage du Fort Bridge, Ottawa river	8,694 07			8,694 07
York Bridge, Grand River		1,210 55		1,210 55
North-west Territories.				
Battleford Bridge, Battle River	2,137 76			2,137 76
Edmonton Bridge, Saskatchewan River		95 85		95 85
Calgary Bridge, Bow River		484 30		484 30
Lesser Slave Lake and Sturgeon Lake, winter road	800 00			800 00
Lethbridge, Belly River	30,489 85			30,489 85
Macleod Bridge, Old Man's River	23,075 42			23,075 42
Peace River and Pelly River, pack trail	2,737 46			2,737 46
Generally, N. W. T.			3,322 21	3,322 21
Totals, Roads and Bridges	76,145 70	6,403 35	11,799 08	94,348 13
TELEGRAPH LINES.				
Nova Scotia.				
Big Bras d'Or to Upper Kempt Head, Boularderie Island	637 82			637 82
Cape Breton Lines			10,254 45	10,254 45
St. Peters to Louisburg, Scatarie and North Sydney	37 00			37 00
St. Peters, Canso	763 10			763 10
Prince Edward Island.				
P. E. Island and mainland (subsidy)			5,583 65	5,583 65
New Brunswick.				
Chatham to Tracadie	2,000 00			2,000 00
Deer Island to Eastport, Me	2,932 41			2,932 41
Bay of Fundy line			2,107 31	2,107 31
Escuminac line			755 67	755 67
Quebec.				
Anticosti, Gaspé lines		1,436 59	3,646 88	5,083 47
Belle Isle, Chateau Bay (Marconi system)	1,135 04			1,135 04
Father Point (subsidy)			500 00	500 00
Isle aux Coudres line (subsidy)			150 00	150 00
Island of Orleans, Isle aux Grues and Grosse Isle	3,383 16		4,158 04	7,541 20
North Shore, east of Bersimis	19,645 65	1,957 28	13,376 22	34,979 15
" west "	848 63		8,723 17	9,571 80
Magdalen Islands lines	2,360 19		3,073 34	5,433 53
Saguenay River lines, east side	1,925 36			1,925 36
" " west side	406 08			406 08
Generally Gulf and Maritime Provinces			12,162 89	12,162 89
" expenses ss. 'Tyrian'			37,572 56	37,572 56

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
TELEGRAPH LINES—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.
Ontario.				
Pelee Island line		3,088 56	236 78	3,325 34
North-west Territories.				
Banff Telephone System	897 92			897 92
Edmonton to Athabaska Landing	2,217 09			2,217 09
Edmonton, Edmonton Indian Agency	671 76			671 76
Qu'Appelle-Edmonton-Moosejaw line	5,468 47			5,468 47
Victoria-Andrew loop line	673 37			673 37
Wood Mountain to Willow Bunch	4,094 75			4,094 75
Generally, N. W. T.			30,703 68	30,703 68
British Columbia and Yukon District.				
Alberni-Cape Beale			774 00	774 00
Alberni-Clayoquot			3,134 34	3,134 34
Ashcroft-Dawson		1,526 25	227,824 80	229,351 05
Golden-Windermere			3,186 62	3,186 62
Kamloops-Nicola			861 03	861 03
Nicola-Penticton	15,775 98		192 20	15,968 18
Nanaimo-Comox			3,443 38	3,443 38
Vancouver-Saltspring	350 00		174 46	524 46
Vernon-Kelowna	5,499 65		292 15	5,791 80
Victoria-Cape Beale			4,826 78	4,826 78
Generally, British Columbia			1,354 62	1,354 62
Telegraph service, generally			3,263 23	3,263 23
Totals, Telegraphs	71,723 43	8,008 68	382,332 25	462,064 36
MISCELLANEOUS.				
Arbitrations and awards			505 00	505 00
Cement testing laboratory			3,002 02	3,002 02
Surveys and inspections—				
Georgian Bay to Montreal waterway			251,540 96	251,540 96
Ottawa River, headwaters and tributaries			21,779 86	21,779 86
Generally			61,042 57	61,042 57
Secretary and accountant's staff			43,996 54	43,996 54
Chief architect's staff			37,279 66	37,279 66
Chief engineer's staff			83,724 93	83,724 93
Superintendent telegraph service staff			4,540 00	4,540 00
Departmental photographer			800 00	800 00
Technical and other books of reference			499 90	499 90
Transportation commission			13,309 98	13,309 98
International Waterways Commission			6,163 43	6,163 43
Gratuity to widow of late A. R. Parent			137 25	137 25
" family of late L. Moore			70 00	70 00
" heirs of late M. A. Trottier			120 00	120 00
" widow of late Jos. Loiseau			100 00	100 00
" " J. E. Hardy			240 00	240 00
" " J. H. Rouleau			122 00	122 00
" " A. Leturmy			120 00	120 00
" " David Scott			250 00	250 00
" " W. J. Ferguson			120 00	120 00
" " G. A. Day			300 00	300 00
" representatives late Tim. Daly			124 00	124 00
" widow of late J. W. Fraser			333 33	333 33
" " P. Savard			152 00	152 00
" " Wm. O'Keefe			65 00	65 00
" Fred L. Eaton			1,000 00	1,000 00
Public Works agency B.C.			1,147 76	1,147 76
Totals, Miscellaneous			532,586 19	532,586 19

PART II.—STATEMENT A.—EXPENDITURE—*Continued.*

Name of Work.	Dredging.	Construction and Improvements.	Repairs.	Staff and Maintenance.	Total.
RECAPITULATION.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Totals Public Buildings—					
Nova Scotia		133,268 55	12,164 70	31,313 03	176,746 28
Prince Edward Island		10,055 35	1,062 48	6,062 01	17,179 84
New Brunswick		85,451 37	7,165 55	28,099 73	120,716 65
Maritime Provinces generally				1,253 20	1,253 20
Quebec		346,549 02	28,372 88	97,692 90	472,614 80
Ontario		924,429 11	296,748 80	350,963 56	1,572,141 47
Manitoba		293,544 60	15,357 53	24,616 46	333,518 59
North-west Territories		117,045 19	11,750 38	24,973 27	153,768 84
British Columbia		61,155 43	10,311 98	27,533 09	99,000 50
Yukon		5,368 37	697 21	91,063 08	97,128 66
Public Buildings generally				23,346 82	23,346 82
Totals, Harbours and Rivers—					
Nova Scotia	34,654 19	314,335 15	68,450 19	12,977 47	430,417 00
Prince Edward Island	17,862 29	24,531 60	5,691 44	1,367 93	49,453 26
New Brunswick	53,321 39	165,812 58	19,832 96	2,977 48	241,944 41
Quebec	258,424 84	913,211 68	66,095 95	40,861 51	1,278,593 98
Ontario	546,240 47	616,307 54	55,657 51	19,074 97	1,237,280 49
Manitoba	31,715 18	21,796 17	5,142 38	2,977 12	61,630 85
North-west Territories		1,517 06			1,517 06
British Columbia	64,921 39	95,020 64	9,892 71	14,714 31	184,549 05
Yukon		6,291 13			6,291 13
Harbours and Rivers gener'ly	5,501 59			8,833 76	14,335 35
Totals, dredges and dredging plant		370,364 23	75,859 68		446,223 91
" slides and booms		66,013 88	45,870 32	83,474 75	195,358 95
" roads and bridges		76,145 70	6,403 35	11,799 08	94,348 13
" telegraph lines		71,723 43	8,008 68	382,332 25	462,064 36
" miscellaneous				532,586 19	532,568 19
Grand totals of expenditure	1,012,641 34	4,719,937 78	750,536 68	1,820,893 97	8,304,009 77

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
Nova Scotia.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Amherst post office, &c.		459 18	379 26	517 65	42 00	1,398 09
Annapolis post office.		432 54	213 64	147 00	40 00	833 18
Antigonish post office.		403 40	114 08	56 00	10 00	583 48
Arichat post office, &c		154 60	78 50	24 31		257 41
Baddeck post office.		263 15	133 50	51 90		448 55
Dartmouth post office		250 00	102 69	129 71	22 40	504 80
Digby post office		414 05	189 35	296 44	60 00	959 84
Guysboro' post office		7 76	427 50	57 32		492 58
Halifax, Asst. Rec. Gen. office	1,217 40		41 37	142 92		1,401 69
" custom house (new)		147 50		219 00		366 50
" Dominion building.		2,469 00	951 03	3,041 91	134 03	6,595 97
" drill shed.		1,200 00				1,200 00
" examining warehouse.	1,500 00	463 06	203 91	70 60	115 49	2,353 06
" engineer's office.	350 00					350 00
" immigrant shed.		600 00	349 39	597 47		1,546 86
" immigrant hospital.	100 00					100 00
Kentville post office, &c.		410 50	260 08	183 25	62 50	916 33
Liverpool post office, &c.		407 56	216 42	110 99	18 00	752 97
Lunenburg post office, &c.		331 45	226 75	109 90	59 00	727 10
Middleton armoury	12 50					12 50
New Glasgow post office, &c.		407 10	356 15	374 83	100 00	1,238 08
North Sydney post office		446 66	268 75	513 97	40 00	1,269 38
Pictou custom house.			168 92	10 32	50 00	229 24
" post office		549 04	202 37	343 78	50 00	1,145 19
Springhill post office, &c.		471 84	259 00	231 89	45 00	1,007 73
Sydney post office, &c.		426 79	261 46	616 76	36 00	1,341 01
Truro post office, &c.		420 16	260 38	341 88	30 00	1,052 42
Windsor post office		416 58	393 10	102 50	50 00	962 18
Yarmouth post office		402 49	296 50	459 90	108 00	1,266 89
Total for N.S., (carried to Statement A, page 7..)	3,179 90	11,954 41	6,354 10	8,752 20	1,072 42	31,313 03
Prince Edward Island.						
Charlottetown, Dom. building.		2,177 31	598 61	1,567 09	225 00	4,568 01
" engineer's office.	200 00					200 00
Montague post office.		168 45	94 11	30 50		293 06
Summerside post office.		427 25	378 15	195 54		1,000 94
Total for P.E.I.,(carried to Statement A, page 7..)	200 00	2,773 01	1,070 87	1,793 13	225 00	6,062 01
New Brunswick.						
Bathurst post office, &c.		467 98	471 25	147 97		1,087 20
Carleton, St. John, post office		100 00	53 50		8 50	162 00
Chatham post office, &c.		367 71	359 77	369 01	18 00	1,114 49
Dalhousie post office, &c.		403 84	278 14	21 32		703 30
Fredericton post office, &c.		431 46	315 16	595 89	74 50	1,417 01
Marysville post office		150 00	122 59	28 46	25 00	326 05
Moncton post office, &c.		400 00	375 48	460 91	134 00	1,370 39
Newcastle post office, &c.		408 95	420 82	215 10		1,044 87
Richibucto post office, &c.		348 36	496 10	152 42		996 88
St. John custom house	22 00	1,969 24	1,762 32	338 61	713 40	4,805 57
" immigrant building.	952 65	1,234 55	1,417 37	895 32	156 14	4,656 03
" post office.	32 73	1,352 52	814 08	1,780 75	704 90	4,684 98
" savings bank		0 50	307 11	55 18	24 06	386 85
Tracadie lazaretto		316 50	1,418 34			1,734 84
St. John quarantine station.				908 94		908 94
St. Stephen's post office. &c.		407 64	165 60	339 60	80 00	992 84
Sussex post office, &c.		302 00	429 09	108 24		839 33
Woodstock post office, &c.		424 00	248 91	161 25	34 00	868 16
Total for N.B., (carried to Statement A, page 8..)	1,007 38	9,085 25	9,455. 63	6,578 97	1,972 50	28,099 73

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec.						
Aylmer post office		60 00	300 70	160 00	41 25	561 95
Berthierville post office		15 92	173 52	50 46	33 00	272 90
Buckingham public building		125 20	220 70	129 90	37 20	513 00
Coaticook public building		412 20	262 17	194 64	40 00	909 01
Drummondville public bldg		300 00	205 38	58 50	17 07	580 95
Dundee custom house			31 75			31 75
Granby public building		322 23	256 75	140 13	150 00	869 11
Grosse Isle quarantine station				10 00		10 00
Fraserville public building		313 70	335 00	76 65	60 00	785 35
Hochelaga post office		223 60	228 75	160 83	60 14	673 32
Hull post office		150 00	452 65	512 81	244 65	1,360 11
Joliette post office		418 23	379 91	110 69	108 00	1,016 83
Lachine post office		114 60	157 20	58 25	36 90	366 95
Laprairie post office		110 15	198 81	28 33	40 00	377 29
L'Assomption post office		169 45	233 75		30 00	433 20
Montreal clerk of works office	35 00					35 00
" civil service examin. office	150 00					150 00
" custom house		2,614 55	990 96	572 74	321 13	4,499 38
" Dom. public bldgs	192 20	1,703 00				1,895 20
" drill hall		787 50				787 50
" examining wareh'se	55 00	6,472 86	2,307 37	3,352 45	641 91	12,829 59
" engineer's office	525 00					525 00
" immigration office	916 65		72 69			989 34
" inland revenue office		647 64	298 42	159 33	101 91	1,207 30
Montreal P.O. and Branches—						
Main office		13,493 05	1,099 95	8,231 16	950 66	23,774 82
Amherst st. branch	75 00					75 00
Metcalf st. branch	89 75					89 75
St. Catherine st. branch (Station B)	2,750 00					2,750 00
St. Lawrence st. branch	66 67					66 67
Westmount branch	150 00					150 00
Windsor station branch	1,300 00					1,300 00
Montreal Public Works Purchaser's office	21 66					21 66
Quebec citadel buildings	32 50	476 95	764 33	116 38		1,390 16
" clerk of works office	45 00	131 00				176 00
" culler's office		541 75	386 85			928 60
" custom house		608 18	1,067 43	429 18	852 50	2,957 29
" examining warehouse		1,566 00	893 11	77 88	450 00	2,986 99
" engineer's office	268 50					268 50
" immigration office	23 50	70 00	552 58	686 65		1,332 73
" observatory				28 59	57 85	86 44
" post office building		1,685 67	854 33	697 77	750 00	3,987 77
" Queen's wharf building			673 20		750 00	1,423 20
" weights & meas. office			71 75			71 75
" immigrant hospital			1,415 68	793 24		2,208 92
Poupore, engineer's office	60 00					60 00
Peribonka immigrant shed		300 00	78 37	10 50		388 87
Richmond post office, &c.		357 81	278 78	168 10	25 00	829 69
Rimouski public buildings		166 94	227 36	41 12		435 42
Roberval immigration shed		333 58	159 00	19 75	15 00	527 33
Sherbrooke post office, &c.		486 03	604 89	509 70	50 00	1,650 62
Sorel post office, &c.		517 35	433 45	840 77	250 00	2,041 57
St. Eustache post office	144 00					144 00
St. Henri post office			119 46	83 88	29 28	232 62
St. Hyacinthe post office		526 11	37 08	492 65	150 00	1,205 84
St. Hyacinthe inland revenue building		314 74	533 66	20 54	50 00	918 94
St. Jérome post office, &c.		410 00	362 71	197 52	54 00	1,024 23
St. John's post office, &c.		350 00	102 60	187 50	60 00	700 10
St. Roch post office			17 43	33 43		50 86

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Quebec—Concluded.						
Thetford Mines post office		32 55	283 62		4 33	320 50
Three Rivers custom house		460 93	527 63	177 00	194 00	1,359 56
" clerk of works of.	96 00	24 00				120 00
" post office		571 70	294 25	352 43	62 00	1,280 38
Valleyfield post office	363 87		349 05	40 43		753 35
Victoriaville post office	1 00	132 10	295 07	232 74	58 38	719 29
West Farnham post office		9 48	94 80	102 56	10 00	216 84
Total for Quebec (carried into Statement A, page 9)	7,361 30	38,526 75	19,684 90	20,347 18	6,786 16	92,706 29
Ontario.						
Alexandria post office, &c		67 50	185 07			252 57
Almonte post office, &c		408 15	209 80	82 97	150 00	850 92
Amherstburg post office, &c		409 45	235 94	162 33	35 00	842 72
Arnprior post office, &c		400 75	491 95	158 47	33 12	1,084 29
Barrie post office		430 10	235 25	174 82	50 00	890 17
Belleville post office		674 18	718 38	761 85	83 25	2,237 66
Berlin post office		433 96	302 73	263 05	20 40	1,020 14
Brampton post office		418 55	184 20	266 62	30 50	899 87
Brantford post office		627 59	477 86	249 82	38 00	1,393 27
Brockville post office		400 70	419 75	725 50	170 00	1,715 95
Bowmanville post office		167 13	250 25	37 62		455 00
Carleton Place post office		304 90	177 50	127 35		609 75
Cayuga post office		57 50	124 73	33 54		215 77
Chatham post office		545 88	276 99	250 82	42 50	1,116 19
Clinton post office		75 08	161 65	157 53		394 26
Cobourg post office, &c	270 00	412 53	226 15	320 82	40 29	1,269 79
Cornwall post office		480 00	322 00	699 10	112 50	1,613 60
Deseronto post office		440 77	289 69	378 85	39 00	1,148 31
Dundas post office	625 00	50 00	53 87	60 00		788 87
Fort William post office, &c		354 63	591 40	32 20	56 34	1,034 57
Galt post office		423 43	246 29	249 48	38 25	957 45
Gananoque custom house			148 40	94 00		242 40
" post office			114 83	141 00	5 00	260 83
Goderich post office, &c		421 45	288 05	185 28	75 00	969 78
Guelph post office, &c	90 00	410 00	228 17	277 66	37 44	1,043 27
Hamilton drill shed		315 00				315 00
" post office, &c		2,003 15	1,270 75	2,027 07	1,340 80	6,641 77
Ingersoll post office, &c		437 10	322 66	323 12	25 87	1,108 75
Kenora post office, &c		412 60	523 18	277 59	70 85	1,284 22
Kingston custom house		193 20	337 25	115 36	61 20	707 01
" drill hall		600 00				600 00
" exam. warehouse			81 30		12 40	93 70
" inland revenue office					21 58	21 58
" military college		3,307 50		45 70		3,353 20
" post office		311 21	268 00	1 015 79	48 06	1,643 06
" Wolfe Island customs office			46 90			46 90
Lindsay post office, &c		400 00	222 16	56 25	37 50	715 91
London custom house		1,105 53	798 49	637 55	140 00	2,681 57
" engineer's office	375 00					375 00
" post office		942 07	785 51	1,266 66	80 00	3,074 24
" drill hall		420 00				420 00
Napanee post office, &c		470 23	161 83	150 40	69 07	851 53
Niagara Falls post office, &c		436 90	226 90	162 50	37 00	863 30
Orangeville post office, &c		400 00	215 88	76 50	20 00	712 38
Orillia post office, &c		334 60	197 00	87 09	32 50	651 19
Ottawa astronomical observa'y			681 23			681 23

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Con.						
Ottawa bacteriological labora'y			70 00			70 00
" experimental farm			1,607 03	345 65		1,952 68
" geological museum		600 00	973 04	607 28		2,180 32
" Major's Hill greenh'se		300 00	420 00	15 50		735 50
" national art gallery, &c			280 00	45 00		325 00
" parliamentary and departmental buildings		38,225 85	41,645 60	20,331 09		100,202 54
" post office		1,800 00	1,507 14	471 58		3,778 72
" printing bureau		5,747 32	10,132 55	475 96		16,355 83
" supreme court		1,536 00	817 54	412 00		2,765 54
" workshops (D.P.W.)		300 00	875 00			1,175 00
Ottawa, rented buildings—						
Albert St. (Railway Mail Service offices)	900 00			50 00		950 00
Metcalfe St. (Labour Dept.)	1,200 00			152 00		1,352 00
Metcalfe St. (Militia D.O.C. offices)	145 83					145 83
Metcalfe St. (Surveyor Gen. offices)	3,750 00	300 00	383 14	315 00		4,748 14
Queen St. (Dept. Pub. W'ks)	137 50					137 50
Queen St., Woods Building (Railway Com., Customs, &c.)	6,625 00	600 00				7,225 00
Queen St. (Exhibition Commissioner's office)	1,000 00			99 00		1,099 00
Queen St., Imperial Building (Immigration, &c.)	4,200 00	600 00	48 00	311 00		5,159 00
Rideau St., Corry Building (Auditor General's office and Marine and Fisheries)	2,113 33			181 66		2,294 99
Slater St., Woods Building (Militia Dept.)	11,040 00	1,200 00	1,451 22	1,217 27		14,908 49
Sparks St. (Census, &c.)	6,500 00	1,500 00	630 00	266 50		8,896 50
Sparks St. (P. O. Dept.)	195 00			57 50		252 50
Sparks St. (P. W. Dept.)	885 00					885 00
Sparks St. (Chief Analyst's office)			204 08			204 08
Sussex St. (Geological Survey)	600 00					600 00
Sussex St. (French Translators' offices)	600 00		102 05	141 02		843 07
Sussex St. (Marine Stores)			372 00			372 00
Wellington St. (Chief Astronomer's offices)	2,200 00			67 50		2,267 50
Wellington St. (Langevin Block)	15 00					15 00
Wellington St. (Customs Statistical offices)	1,500 00	300 00	420 00	263 50		2,483 50
Wellington St. (Public W'ks workshops)	1,939 77	876 00	641 64	198 23		3,655 64
Wellington St. (N.W.M. Police stores)	1,425 00			105 00		1,530 00
Wellington St. (Dairy Commissioner's office)			280 00			280 00
Wellington St. (Gas Inspector's office)				13 68		13 68
Paris post office, &c		417 00	140 07	109 53	63 60	730 20
Pembroke post office, &c		404 05	318 50	198 00	28 00	948 55
Peterboro', custom house		307 00	283 15	70 81	75 00	710 96
" post office		333 93	331 98	537 50	50 00	1,270 41
Petrolea post office, &c		410 95	225 66	32 65	34 76	704 02
Picton post office, &c		428 68	244 00	147 83	27 00	847 51
Port Arthur post office, &c		303 20	261 23	129 20		693 63

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario—Con.						
Port Colborne post office, &c.		253 85		99 75	12 50	366 10
Port Hope post office, &c.		435 50	275 20	217 40	21 93	950 03
Prescott custom house			103 50			103 50
" post office		411 30	225 25	204 62	120 00	961 17
Sarnia post office, &c		434 98	356 60	227 14	66 00	1,084 72
Smith's Falls post office, &c		349 80	214 50	96 50	106 25	767 05
Stratford post office, &c		665 62	394 40	248 68	102 17	1,410 87
Strathroy post office, &c		430 55	233 65	239 10	10 80	914 10
St. Catharines post office, &c		423 20	337 86	171 05	76 91	1,009 02
St. Thomas post office, &c		440 55	325 00	354 30	29 92	1,149 77
Sault Ste. Marie post office, &c.			176 57			176 57
Toronto civil ser. exam. office	101 00					101 00
" custom house		1,637 27	695 63	267 63	41 99	2,642 52
" Dom. pub. build. gen.		1,200 00				1,200 00
" drill shed		1,193 55				1,193 55
" engineer's office	605 00					605 00
" examining warehouse		4,453 79	1,021 96	386 44	69 83	5,932 02
" inland revenue office		670 05	311 61	144 46	34 13	1,160 25
" receiver gen. office		365 00		89 52		454 52
" post office		7,919 38	1,768 47	5,866 69	510 30	16,064 84
" post office, stable	156 00					156 00
" post office, station B	758 00					758 00
" steamboat insp. office.	562 50					562 50
" Junction post office		17 90				17 90
Trenton post office, &c		454 45	208 85	205 00	75 00	943 30
Walkerton post office, &c.		412 35	274 83	151 80	31 00	869 98
Windsor post office, &c		829 50	510 50	733 03	96 00	2,169 03
" drill hall		400 00				400 00
Woodstock post office		471 20	310 64	430 75	35 20	1,247 79
Totals for Ontario (carried to Statement A, page 11)	50,513 93	100,863 09	85,509 58	49,634 56	4,771 71	291,292 87
Manitoba.						
Brandon experimental farm			322 00			322 00
" immigrant building			235 00	54 09	25 83	314 92
" post office, &c		629 40	1,049 82	946 39	100 00	2,725 61
Dauphin Dom. lands office	1,107 00					1,107 00
" immigration bldg.			76 50			76 50
East Selkirk immign. bldg	5 00		177 00			182 00
Minnedosa Dom. lands office	165 00		150 79			315 79
Portage LaPrairie post office.		404 45	591 31	244 15		1,239 91
Winnipeg clerk of works office.	50 00	94 00				144 00
" custom house		248 00	756 49	87 89	64 87	1,157 25
" Dominion lands office			271 35	17 49	45 24	334 08
" Dom. public buildings generally		69 58				69 58
" engineer's office	292 00					292 00
" examining wareh'se.		104 00	548 35	81 88	44 36	778 59
" immigrant shed	468 87		1,420 32	200 55	13 65	2,103 39
" inspector W.& M.off.	710 00					710 00
" post office		4,249 19	3,733 71	3,569 60	767 68	12,320 18
" immigrant hospital					13 18	13 18
Teulon, immigrant building.	225 00					225 00
Totals, Manitoba, (carried to Statement A, page 12)	3,022 87	5,798 62	9,332 64	5,202 04	1,074 81	24,430 98

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.
North-west Territories.						
Alameda, dom. lands office	195 00		150 09			345 09
Battleford, dom. lands office	50 00					50 00
" immigrant bldg.			70 00			70 00
Calgary, court house, &c.		614 91	658 62	243 10	150 00	1,666 63
" engineer's office	240 00					240 00
" immigrant building			336 18			336 18
" land & reg. office		1 35	19 00			20 35
" post office		593 40	432 56	999 05	170 00	2,195 01
Carnduff court house		503 80	126 85	2 00		632 65
Didsbury, immigrant bldg.	72 00					72 00
Davidson, immigrant bldg.	100 00					100 00
Duck Lake, immg't bldg.			3 00			3 00
Edmonton court house	810 00	605 70	54 40	79 00	22 50	1,571 60
" dom.lands & reg.off.		419 66	185 00			604 66
" immigrant shed	765 00		114 24			879 24
" post office	42 00	8 50		206 05		256 55
Innisfield, immigrant bldg.	90 00					90 00
Indian Head, experm't tl farm			453 40			453 40
Lacombe, immigrant bldg.	117 00		37 50			154 50
Lethbridge, court house and custom house	52 50	0 60	32 50	18 49		104 09
" immigt'n bldg.			86 00	117 06		203 06
" post office		584 40	125 50	92 18	45 00	847 08
Leduc,immigrant bldg.	80 00					80 00
Lloydminster, immigrant shed			370 00			370 00
Medicine Hat, court house		556 70	38 00	76 24	15 00	685 94
Macleod, custom house			519 88	30 10		549 98
" court house	125 00	633 28	388 54	30 60		1,177 42
" immigrant hall	225 00		48 45			273 45
Moose jaw, court house		367 98	182 22	3 00		553 20
Moosomin, court house		680 85	450 19	19 24		1,150 28
Penoka, immigration bldg.	100 00					100 00
Prince Albert, Dom. lands and reg. office		412 65	315 00	19 30		746 95
Qu'Appelle, immigrant bldg.			18 68			18 68
Red Deer, dom. lands office	192 00		151 65			343 65
" immigrant shed			80 40			80 40
Regina, court house		1,123 50	778 25	163 58		2,065 33
" Dom. lands and reg. office		612 56	553 17	77 92		1,243 65
" immigrant bldg.	1 00		260 00	39 68		300 68
" Lt.Gov. residence		25 45		13 92		39 37
" post office		24 85	412 80	289 96		727 61
Saskatoon,immigrant bldg.			968 25			968 25
Strathcona, immgt. shed	180 00		120 06			300 06
Wolseley, court house		24 85	429 48	34 75		489 08
" Dom. lands office		540 00				540 00
Yorkton, Dom. lands office	420 00					420 00
" court house		506 25		8 35		514 60
" immigrant bldg			339 60			339 60
Total, N.W.T., (carried to Statement A, page 13)	3,856 50	8,841 24	9,309 46	2,563 57	402 50	24,973 27
British Columbia						
Atlin, post office		152 25	127 50	159 21		438 96
Agassiz, experimental farm			101 92			101 92
Kamloops, post office		35 45	382 02	661 99	36 00	1,115 46
Kamloops, dom lands office		600 00				600 00

PART II.—STATEMENT B.—EXPENDITURE—*Continued.*

Name of Building.	Rents.	Salaries of and Supplies for Engineers.	Heating.	Lighting.	Water.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
British Columbia—Con.						
Nanaimo, post office		619 20	90 00	225 00	45 00	979 20
Nelson, public building	16 35	630 00	570 06	787 75	72 00	2,076 16
New Westminster drill shed			108 24			108 24
" post office		681 05	923 36	524 67	40 12	2,169 20
Rossland, post office, &c		627 05	818 01	720 00	129 69	2,294 75
Vancouver, dead letter office	225 00					225 00
" drill hall		1 50	24 75			26 25
" examining warehse	900 00		3 69	18 09		921 78
" post offiec		1,924 90	377 70	1,214 07	74 90	3,591 57
" postal and express package office	675 00					675 00
" custom house				386 55		386 55
Victoria, appraisers office				6 40		6 40
" barracks, D. O. C			19 20			19 20
" drill hall			19 20			19 20
" exam.ng warehouse			5 00			5 00
" old custom house		604 00	94 50	75 82	18 00	792 32
" military store			12 80			12 80
" post office		3,148 80	48 40	1,147 63	49 40	4,394 23
" old post office		46 35	562 30		106 20	714 85
" P. works office	84 00					84 00
" custom house			46 00			46 00
" marine hospital			24 20			24 20
William's Head, quar. stn	60 00		3,879 66			3,939 66
Total, B.C., (carried to Statement A, page 13)	1,960 35	9,070 55	8,238 51	5,927 18	571 31	25,767 90
Dominion buildings generally			979 76			979 76
Yukon Territory.						
White Horse, post office		500 00	865 00	1,446 90	108 00	2,919 90
Dawson, sundry public buildings, not apportioned						88,143 18
Totals, Yukon, (carried to Statement A, page 13.)		500 00	865 00	1,446 90	108 00	91,063 08

PART II.—STATEMENT C.—Showing amounts loaned by Government under the authority of special Acts of Parliament and upon the recommendation of the Hon. the Minister of Public Works, during the Fiscal Year 1904-05.

No transactions of this nature during the fiscal year.

A. G. KINGSTON,
Accountant.

PART III

REPORT

ON

PUBLIC BUILDINGS THROUGHOUT THE DOMINION

FOR THE FISCAL YEAR ENDED JUNE 30 1905

BY THE

CHIEF ARCHITECT

PUBLIC WORKS, CANADA,
CHIEF ARCHITECT'S OFFICE,
OTTAWA, January 10, 1906.

F. GÉLINAS, Esq.,
Department of Public Works.

SIR,—I am sending you herewith, annual report of works executed under this branch during the year ended June 30, 1905.

D. EWART.
Chief Architect.

PROVINCE OF NOVA SCOTIA.

ANTIGONISH.

PUBLIC BUILDING.

On June 15, 1905 a contract was entered into for the construction of this building on the post office site.

There is a main portion, 64 feet x 32 feet, exclusive of projections, two stories, basement and attic, a portion of which, 12 feet x 12 feet is carried up two stories higher and covered with a pyramidal roof, and a two story and basement adjunct 15 feet x 32 feet. The external walls are of brick on a stone basement, the roofs, floors and partitions wood. There is a brick safe on the ground floor and one on the first floor. The ground floor of the main building is for the post office and that of the adjunct for the examining warehouse and W.C.'s; on the first floor are offices, a brick vault and a W.C. room; the attic, six rooms and a bath-room for the caretaker, and the basement is for heating apparatus, fuel and storage.

Plans, &c., prepared by this department.

Clerk of works, Alexander MacGillivray.

Contractors, The Rhodes Curry Company.

HALIFAX.

APPRAISER'S OFFICE.

Repairs were made to woodwork, plumbing and glazing under the supervision of C. E. W. Dodwell, resident engineer and inspector of buildings, Nova Scotia, Halifax.

CUSTOM HOUSE.

This building which was described in a previous report has been carried on continuously during the fiscal year and is still in progress.

ASSISTANT RECEIVER GENERAL'S OFFICE.

New furniture for the Inspector's office was purchased.

HALIFAX.

DOMINION BUILDING.

The external surface of the stonework was thoroughly repointed and repaired, and repairs were made to copper roof covering—interior woodwork, lock boxes, electric wiring and furniture. The street letter boxes were painted and some new electric lamps, furniture and fittings were supplied.

Work supervised by C. E. W. Dodwell, resident engineer and inspector of public buildings, Halifax, N.S.

IMMIGRATION BUILDING.

A second story was added to the eastern portion of the building: a number of the partitions were removed and new partitions constructed: the building was jacked up, generally and extensively repaired and painted. Plans for hot water heating apparatus and an extension of the furnace room are prepared.

Plans prepared by this department and work carried out under the supervision of C. E. W. Dodwell, resident engineer and inspector of public buildings, Nova Scotia, Halifax.

Contractor for the additional story, &c. John MacInnes & Sons.

LAWLOR'S ISLAND.

QUARANTINE STATION.

Third-class 'A' Detention Building.—The whole south side of roof was shingled, the cubicles were finished, the doors hung and all painted. At the rear the slope of the cutting was levelled down and sowed with grass and the road gravelled.

First-class Detention Building.—The whole roof was re-boarded, papered and shingled.

Steward's Residence.—The whole roof was repapered and shingled. The old window sashes were re-puttied and painted, and many new panes put in. A new porch was built.

Storehouse.—The back room was ceiled, shelved and painted and the shingles on roof re-nailed.

The five hydrants were overhauled and repaired.

The main road was re-gravelled.

Work done under the supervision of C. E. W. Dodwell, resident engineer and inspector of public buildings, Halifax, N.S.

TRACHOMA HOSPITAL.

A site was acquired in the suburbs of Halifax, on the west side of Gottingen street, a part of the property known as the 'jail property,' having a frontage of 130 feet by a mean depth of 401 feet and a breadth in the rear of 165 feet.

NORTH SYDNEY.

PUBLIC BUILDING.

The post office fittings were largely added to and altered and some minor alterations made to the ground floor partitions.

SYDNEY.

DOMINION BUILDING ADDITIONS.

This work which was described in my report of last year has been completed ; new post office fittings, electric wiring and heating apparatus supplied and the building occupied.

Plans, &c., prepared by this department.

Clerk of works, Duncan A. Gillis.

Contractors, The Rhodes Curry Company.

SYDNEY MINES.

PUBLIC BUILDING.

On September 29, 1904, a contract was entered into for the construction of this building on the corner of Fraser avenue and the Railway right of way. It is irregular in outline and measures 53 feet x 42 feet over all. It is to be of brick with stone dressings and stone basement ; two and a half stories and basement, excepting an octagonal tower on street corner which is to have an additional story in height. The basement floor is to be concrete but the remaining floors as well as the roof, stairs and partitions are to be wood; the roof covering to be in part galvanized iron and in part tar and gravel. The basement is to contain the furnace and fuel rooms and storage ; on the ground floor are to be the post office, the examining warehouse, two vestibules, a brick vault, the stairway and a lavatory room; on the first floor the Customs and Inland Revenue offices, stairway and lavatory room, and in the attic the caretaker's apartments.

Plans and specification prepared by this department.

Clerk of works, James Francis.

Contractor, James Reid.

YARMOUTH.

PUBLIC BUILDING.

On March 30, 1905, an agreement was entered into for the construction of an additional story on the one story adjunct in the rear, as well as for sundry changes in the interior arrangement.

Some repairs were made to fence and to warehouse entrances and new gate posts put in.

Clerk of works, Jas. E. Heustis.

Contractor for additions, Wm. E. Simms.

PROVINCE OF NEW BRUNSWICK.

CAMPBELLTON.

POST OFFICE, &C., BUILDING.

On September 30, 1904, a contract was entered into for the construction of this building which consists of a main portion two and one-half stories, of brick with stone foundation and on a stone basement, having a frontage of 50 feet on Water street, by a depth of 40 feet, and a one story brick adjunct on a stone basement in rear of

the main portion measuring 16 feet x 25 feet. The basement is for heating apparatus, fuel and storage; the ground floor is for the post office and has also stairway, hall, vestibule and mail entrance. The adjunct is for the examining warehouse; the first floor is for Chstoms and Inland Revenue offices and the attic for caretaker's apartments. The basement walls are lined with brick, and the partitions of the basement and ground floor are of brick but the remaining partitions are wood. The floor of the basement is of concrete, but the remaining floors as well as the roof are of wood and the roof covering is slate on slopes and tar and gravel on deck. There is a lavatory and W.C. room on first floor and a bath-room in attic.

Plans, &c., prepared by this department.

Clerk of works, John Mackenzie.

Contractors, J. and D. A. Harquail.

ST. JOHN.

PARTRIDGE ISLAND QUARANTINE STATION.

On August 26, 1904, contracts were entered into for the construction of a new hospital building and for two semi-detached pairs of detention buildings, all of which are to be two stories of wood on stone basement.

The hospital consists of a main portion, 39 feet x 25 feet for administration offices, two lateral wings, 27 feet long by 21 feet broad for wards, and a kitchen wing 28 feet x 15 feet in the rear. There is heating by hot water ; plumbing with hot and cold water supply and drainage.

There are two blocks of two semi-detached detention buildings, each block 148 feet long x 20 feet broad. The basement of each building is restricted to a portion for furnace-room, 23 feet x 15 feet—the ground and first floor are alike, each containing a stairway hall, a sitting-room, a bath-room, a lavatory-room and eleven state-rooms, four of the state-rooms having eight berths, one having six berths and the remainder four berths each. There is hot water heating, hot and cold water service and drainage.

Plans, &c., for the foregoing buildings prepared by this department and work supervised by D. H. Waterbury, St. John, N.B.

Detention building 'B' had repairs to plumbing, furnace and stovepipe and had walls, partitions and ceilings of halls and lavatories painted two coats.

Detention building 'C' was painted as the foregoing building, had the windows re-puttied, some ladders supplied and repairs made to plumbing.

The superintendent's residence had the exterior walls painted two coats, the roof coated with fire-proof paint and the ceilings, porch and verandah repaired.

In the Steward's residence the plaster of walls and ceilings was repaired, a new ceiling was put in hall, a number of rooms were papered, the hall, kitchen and porch were painted, the ceilings whitened and minor repairs done to woodwork, &c.

Some plumbing repairs were effected at the old hospital.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

CUSTOM HOUSE.

A large portion of the concrete floor of the Marine and Fisheries warehouse being broken and sunken was removed and replaced by new concrete. A lunch-room for the officials was fitted up in the building with plumbing, gas, furniture, &c., and a bath-room with all requisite furniture was fitted up for the caretaker. The customs vault had improvements in the way of shelving, drawers and fixtures and the express-room

had increased accommodation provided and some new partitions as well, also shelving, counter, &c. Chandeliers were provided for three rooms. The main entrance doors were cleaned, rubbed, filled and varnished and the painted walls of halls and corridors cleaned. Repairs were made to masonry, lining and doors of furnace, the roof and hatches of observatory, the copper roof, gutters and pipes, the elevator of Customs Department, the plumbing, the bells, the locks, glazing, ironmongery, &c. Some articles of furniture were supplied to the office of the inspector of weights and to that of the agent of immigration.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

POST OFFICE.

The basement concrete floor where worn or broken was made good as were parts of the ceilings in inspector's flat and parts of the wood flooring there and in general delivery. A new door at Princess street entrance was hung complete. Some improvements were made in the offices of the customs postal service and some fittings and furniture supplied thereto. The rat-holes throughout building were plugged ; the painted walls of ground floor were cleaned, the lobby ceiling kalsomined and the money order office door relettered. The copper roof was repaired, the flashing made good and the conductors and down-pipes cleaned. Repairs were made to hoist, plumbing, letter-boxes, heating apparatus, bells, glazing, lighting, ironmongery, blinds, furniture, &c. An office cabinet was supplied to the office of Superintendent of Railway Mail Service, and some minor articles of furniture supplied to the various offices.

Work supervised by D. H. Waterbury of this department, St. John, N.B.

SAVINGS BANK.

Minor repairs were made to heating apparatus, flag-staff, &c., the interior walls were painted and varnished or papered and the ceilings whitened.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

IMMIGRATION BUIDLINGS.

These consist of the immigration building, the property of the department and also the immigration quarters in No. 4, city warehouse under rental to this department. In the former a part was fitted up as hospital apartments involving new partitions, bed-rooms, dining-room and kitchen, furniture, ranges, baths, disinfectors, plumbing, closets, lavatories, a dumb waiter, extension of chimney, windows, blinds, stand pipes, hose, fire-extinguishers, wiring and electric lamps, painting walls, partitions and ceilings and repairs to woodwork, glazing, doors, ironmongery, &c. The matrons' apartments were extended and supplied with additional furniture, carpets, curtains, blinds, wash-tubs and plumbing as well as papering, painting and whitening walls and ceilings.

In the warehouse shed a large number of repairs were effected to the plumbing, drainage and heating as well as some improvements made to the last mentioned.

All done under the supervision of D. H. Waterbury, of this department, St. John. N.B.

ST. JOHN, NORTH (PORTLAND).

POST OFFICE BUILDING.

On February 15, 1904, the building was sold by the government to Dr. J. E. Maher, but the office remained in the premises during the year. The post office has since been removed from this building.

ST. JOHN WEST (CARLETON).

POST OFFICE.

Repairs were made to slate and flashing of roof, also to woodwork, outside doors and frames, plumbing and stoves. The interior walls of the building, main floor, were painted, the ceilings whitened and the woodwork varnished.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

ST. STEPHEN.

PUBLIC BUILDING.

Excepting in the post office, all the internal walls, partitions and ceilings were cleaned and kalsomined. The main entrance doors and the doors of examining warehouse were cleaned and hard oil finished, the doors of customs long room and collector's long room were lettered. Five Grayson lamps were supplied.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

SUSSEX.

ARMOURY.

Repairs were made to chimney, doors and woodwork under the supervision of D. H. Waterbury, of this department, St. John, N.B.

TRACADIE.

LAZARETTO.

A portion of the basement was partitioned off to form two rooms and a steam disinfector installed between them. Repairs were made to steam wash tubs, plumbing, heating apparatus, W. C's. and pump.

Work supervised by D. H. Waterbury, of this department, St. John, N.B.

WOODSTOCK.

ARMOURIES.

A contract for the construction of this building was entered into on October 25, 1904. It is situated on Chapel street and extends back to Charlotte street. The site is that of the Woodstock skating rink, the roof and framing of which have been partly utilized in the drill hall and of the gunshed in rear. The building consists of a drill hall 95 feet long by 60 feet wide, flanked on both sides by leanto artillery wagon sheds; in front, on Chapel street, is a brick building of 98 feet frontage by 45 feet in depth of which the median 40 feet frontage is three stories and the remainder two stories, containing in the basement the heating furnaces and fuel; on the ground floor the engineers wagons, harness, orderly and C.O.; on the first floor the engineers armoury, lecture room, two infantry armouries, infantry orderly, infantry C.O. and lavatory; on the second floor the caretakers quarters. In the rear and reaching to Charlotte street is the artillery gunshed 30 feet by 95 feet, 30 feet by 60 feet of which has an additional story devoted to artillery armoury, artillery orderly room, C.O., and recreation room. The basement walls are to be concrete; the three story block on Chapel

street is to have walls of brick and those of the remaining portion wood, brick veneered. The basement is restricted to a portion of the Chapel street block.

Plans, &c., prepared by this department.
Clerk of works, James E. Drysdale.
Contractor, Williamson Fisher.

PROVINCE OF PRINCE EDWARD ISLAND.

SOURIS.

PUBLIC BUILDING.

On January 26, 1905, a site for this building was acquired by purchase, which has a frontage of 63 feet on Main street, by 100 feet in depth. Plans and specification of the building were prepared and tenders invited for the construction.

PROVINCE OF QUEBEC.

ACTON VALE.

POST OFFICE BUILDING.

This building which was described in my report last year, has been carried forward nearly to completion and is being furnished, fitted up and supplied with a hot water heating system.

Plans, &c., prepared by this department.
Clerk of works, Octave Bernard.
Contractor, Joseph Bourque.

LEVIS.

CATTLE QUARANTINE.

A cupboard and a chimney were constructed in the employees building under the supervision of Ph. Bèland, clerk of works.

PUBLIC BUILDING.

On February 3, 1905, a contract was entered into for the construction of this building which is to be 2½-stories of brick with stone dressings and on a stone basement measuring 64 feet in depth by 45 feet frontage and having in the rear a one story and basement adjunct 43 feet in depth by 20 feet in length. In the frontage is to be an engaged angle tower 15 feet square and having four stories and basement. The basement is to be for the heating, fuel and storage and shall contain a brick safe. The ground floor of the main portion, excepting 15 feet of the rear, is to be the post office ; the rear of the main portion is to contain the stairway hall, a brick vault, mail entrance and lavatory; the adjunct is to be the examining warehouse. On the first floor are to be the customs long room, collectors office and two clerk's offices as well as a brick safe, lavatory room and stairway and hall, in the attic are to be the caretaker's apartments. The floor of the basement is to be concrete but the remaining floors as well as the roof and

a number of the partitions on first and attic are to be of wood; the remaining partitions as well as the lining of the basement walls to be of brick. The sloping roofs are to be covered with sheet iron and the decks with tar and gravel.

Plans, &c., prepared by this department.

Clerk of works, L. Auger, architect.

Contractor, Joseph Couture.

LONGUEUIL.

POST OFFICE.

This building which is situated on Chambly street has a frontage thereon of 38 feet by a depth of 29 feet. The contract for construction was entered into on September 28, 1904. It is a two and one-half story brick building, with stone dressings and a stone basement. The basement floor is concrete but the remaining floors as also the roof, cornice, partitions and stairs are of wood. The roof covering is of galvanized iron on the sloping portions and tar and gravel on the deck.

The basement is for heating furnace, fuel and storage; the ground floor contains the post office, staircase, hall and lavatory; the first floor has four rooms and a stairway, and the attic three rooms, a bath-room, a W.C. room and stairway.

Plans, &c., prepared by this department.

Clerk of works, Alfred Préfontaine, architect.

Contractor, Joseph Bourque.

MONTREAL.

CUSTOM HOUSE.

A large amount of repairs were made to W.C.'s—new bowls and new urinals were supplied; tile floors and dados were put in, also slate divisions and new ventilating pipes.

A toilet-room was fitted up for the caretaker's use, with bath, &c.; plumbing repaired, galvanized iron water service pipes were fitted up, several basins, taps, &c., were added.

The electric light system was installed in a part of the building; furniture was supplied, such as tables, desks, chairs, carpets, &c.

Sidewalks were repaired; stones were levelled, joints filled in with cement, and the roof was repaired at different parts.

Work done under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

INLAND REVENUE BUILDING.

Repairs were made to lighting service and several lights added with mica chimneys and mantels, &c. Repairs were made to gas pipes, W.C.'s, urinals, &c., and the roof underwent repairs. All done under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

POST OFFICE.

General repairs were made to interior of building; the walls and ceilings were repaired and whitewashed; the woodwork, windows, doors, &c., were repaired and painted, and the hardwood re-varnished. Iron bars were put on several windows for protection. Furniture, such as tables, chairs, pigeon-holes, desks, &c., were supplied for office of Railway Mail Service. A window was altered into a door with storm-door, porch, &c., for the mail entrance on Fortification street. All the electric motors were

repaired ; steel cables for all the elevators were supplied and put in. Two special switches were also put in; bag racks and pigeon-holes were supplied to letter-carriers department.

Work executed under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

POST OFFICE STATION 'B', ST. CATHERINE ST.

A sign was supplied, some gold lettering was done on windows and doors, a number of window blinds were supplied and put up, and iron grilles were put in window and doors at mail entrance under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

LETTER CARRIERS BRANCH OFFICE, 333 ST. LAWRENCE ST.

The counter was repaired, walls and ceilings whitewashed, woodwork, doors and windows painted, under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

EXAMINING WAREHOUSE.

Several extensive repairs were made; W.C.'s on each floor were paved with tile and had tile dados and slate divisions. Hot and cold water taps were fitted in each W.C. room; three new tubs with hot and cold water supplies were put in for laundry purposes; a copper-lined tub was installed with hot and cold water supplies for cleaning of windows. The six freight elevators were removed and replaced by a like number of new ones having steel inclosures; the heating apparatus was repaired ; additonal water closets were put in basement and in assistant caretaker's room. A complete system of electric light with arc lamps, &c., was installed. The roof was recovered with galvanized iron.

A complete cleaning was made; walls and ceilings were repaired and whitewashed; all woodwork, doors and sashes, inside and out, were painted; additions were made to counter with glazed divisions; shelving was supplied and put up in several departments; furniture was supplied, also linoleum and carpets for rooms and wire rugs for entrance halls. Stone sidewalks were levelled and joints filled in with cement.

Work executed under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

NEW IMMIGRATION HOSPITAL.

Extensive repairs were done to this building; the walls and ceilings were repaired and whitewashed; the woodwork, &c., painted; new glazed partitions were put in several rooms; W.C.'s, urinals, baths, &c., were installed; furniture was supplied, such as chairs, tables, desks, cupboards, iron beds, spring beds, coal stove, kitchen utensils, &c. A special room for laundry was repaired; tubs with hot and cold water taps were installed. The water supply pipes were replaced by larger galvanized iron pipes in order to give sufficient pressure for the necessary requirements. Verandahs and stairs were repaired, also fences, gates, &c. A new sidewalk at immigrants private entrance was made. All the above named work done under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

QUEBEC.

HIS EXCELLENCY'S RESIDENCE, CITADEL.

A coal bin was constructed, repairs were effected to plumbing, bells and lighting; some of the furniture was repaired and revarnished, and the interior of the building cleaned and put in order for the annual visit of Their Excellencies.

Work supervised by Ph. Béland, clerk of works, Quebec, P.Q.

ARTILLERY WORKSHOPS.

The eaves troughs which had been broken by ice were renewed under the supervision of Ph. Béland, clerk of works, Quebec, P.Q.

CUSTOM HOUSE.

Electric bells and clocks were installed; a new water service pipe from the city main was laid; several offices were repaired, papered and painted and some linoleum was laid.

Work supervised by Ph. Béland, clerk of works, Quebec, P.Q.

CULLERS OFFICE.

A new furnace was put in, a number of rooms were papered and painted, and some linoleum supplied, all under the supervision of Ph. Béland, clerk of works, Quebec, P.Q

EXAMINING WAREHOUSE.

A new foundation and traps were put in elevator; several of the basement joists and beams were renewed; the second floor was relaid in birch and a new partition made.

Work supervised by Ph. Béland, clerk of works, Quebec, P.Q.

CULLERS OFFICE.

A new heating furnace was fitted up, the rooms were papered and painted, some linoleum and several articles of furniture were supplied and some minor repairs executed, all under the supervision of Ph. Béland, clerk of works, Quebec, P.Q.

IMMIGRATION BUILDING, LOUISE EMBANKMENT.

A large covered-way was built from shed to wharf; a furnace and radiators for heating the rooms of the officers and assistant matron rooms were fitted up, the building enlarged at front and rear and a pipe, with hand pump and tank, put in from well to shed.

Work supervised by Ph. Béland, clerk of works, Quebec, P.Q.

POST OFFICE.

All the flooring on first floor was renewed in brick and oiled and the offices of Superintendent of Railway Mail Service were papered and painted and had some furniture supplied. On second floor, two offices were prepared for the telegraph service, as also a lavatory containing a W.C. and wash basin, and partitions were put to divide these offices from the caretaker's apartments.

Work supervised by Ph. Béland, clerk of works, Quebec, P.Q.

QUEBEC.

TRACHOMA HOSPITAL—SAVARD PARK.

On May 19, 1904, a part of Cadastral lots 2427 and 2428 with the buildings thereon situated on the north shore of the River St. Charles was purchased. The hotel building was altered to fit it for hospital purposes. The basement was deepened, floored with concrete and had the outside walls under-pinned with concrete; the brick work of the outside walls, which were wooden, veneered with brick, was repaired, the arrangement of the partitions was largely altered; several of the floors were repaired and new doors and windows opened. Baths, water closets, sinks, basins, drainage and plumbing was put in ready for connection with the city aqueduct. Electric light was installed and the building cleaned, painted and tinted. On April 28, 1905, the building was destroyed by fire and the large music hall building had to be converted into a hospital. Wooden partitions, baths, plumbing, water supply, drainage and other necessary works were put in under the supervision of Ph. Béland, clerk of works, Quebec, P.Q.

WEIGHTS AND MEASURES OFFICES.

A heating apparatus was put in, the drainage renewed, the cellar cleaned and floored, birch floor laid over ground floor area, offices divided by glazed partitions, inside windows fitted, a large quantity of painting, graining and papering done, all by day labour under the supervision of Ph. Béland, of this department, Quebec, P.Q

ST. HENRI.

POST OFFICE.

Caretaker's quarters were repaired, walls and ceilings whitewashed, woodwork, &c., painted, under the supervision of C. Desjardins, clerk of works, public buildings, Montreal, P.Q.

ST. HYACINTHE.

DRILL HALL.

On March 25, 1905, a contract was entered into for the construction of the building which is to be of brick with stone dressings and on a stone foundation. It is to consist of a drill hall, 147 feet by 75 feet inside dimensions having at one side a two story adjunct 166 feet by 27 feet exclusive of an octangular turret, 19 feet in diameter and three stories and basement in height, and of a one story and basement leanto 24 feet by 12 feet. A portion of the adjunct, 72 feet by 27 feet which includes the turret, is to be excavated for use as heating and fuel rooms; on the adjunct ground floor are to be twelve rooms for armouries and also lavatories, stairway, driveway, &c. On the first floor are to be shooting gallery, lecture hall, officers mess, sergeants mess, and caretaker's apartments. The partitions are to be principally of brick, the framing of hall roof and gallery of iron, the floor of the hall of wood block on a concrete foundation, the basement floor of concrete and the remaining floors, roof and some of the partitions of wood. The main hall roof is to be covered with galvanized iron and the remaining roofs with felt and gravel.

Plans, &c., prepared by this department.
Clerk of works, Francis Renaud.
Contractors, Paquet and Godbout.

ST. HYACINTHE.

INLAND REVENUE BUILDING.

This building which was described in my report for 1904 is fitted up, furnished and supplied with hot water, heating and electric lighting.

Plans and specifications prepared by this department.

Clerk of works, John Arbour.

Contractors for construction, Paquet & Godbout.

Contractor for heating, J. Thérian.

ST. LOUIS DU MILE END.

POST OFFICE.

The contract for the construction of this building was entered into on August 23, 1904. It has two stories, basement and attic, and measures 42 feet by 41 feet exclusive of front porch. The basement is of stone as also are the angles of front elevation, the facing of ground floor front, the lower part of eaves cornice, the walls, cornice and steps of porch, the string courses, window sills, lintels, &c.; the remaining portions of the outside walls of brick. The basement floor is of concrete, but the remaining floors, the roof, partitions and stairway are of wood. The sloping roof is covered with slates and the deck with tar gravel. The upper members of the eaves cornice and the entire deck cornice are copper. There is ornamental wrought iron cresting to the deck roof. The basement is to contain the furnaces of the hot water heating system, fuel and storage; the ground floor is to contain post office, customs offices, examining warehouse and stairway; the first floor, five rooms, a bath room and stairway and the attic six rooms, &c.

Plans, &c., prepared by this department and work supervised by Perrault and Lesage, architects, Montreal, P.Q.

Contractor, J. B. Pauzé & Co.

TERREBONNE.

POST OFFICE.

On November 25, 1904, a contract was entered into for the construction of this building on the corner of St. Pierre and St. André streets, with frontages of 40 feet and 31 feet respectively. It is of stone and has two stories, basement and attic. The basement floor is of concrete but the remaining floors, as well as the roof, stairs and partitions are of wood. The roof is covered with steel shingles on the slopes and gravel on the deck.

The basement is for heating apparatus, fuel and storage; the ground floor contains the post office, the stairway, hall and lavatory; the first floor contains four rooms, the stairway and passage and the attic contains three rooms, besides a bath room, a W.C. room, a stairway and a passage.

Plans and specifications prepared and work supervised by Lacroix and Piché, architects, under the direction of this department.

Contractor, Ernest Paquet.

THETFORD MINES.

PUBLIC BUILDING.

This building was described in my report for 1904. It is now completed, and is being fitted up and supplied with a hot water heating system.

Plans, &c., prepared by this department.

Clerk of works, Ant. Grégoire.

Contractors for construction of building, Dussault & Pageau.

Contractor of heating system, A. Beauchêne.

Contractor for electric light installation, L. J. S. Rousseau.

THREE RIVERS.

DRILL SHED.

On May 1, 1905, a contract was entered into for the construction of this building which is to be brick with stone dressings and stone basement walls and consists of a drill hall, 155 feet by 71 feet inside measurement with a two and three story adjunct along one side, the full length of the hall by 27 feet in breadth, containing in the basement, the furnace and fuel rooms, recreation room and store rooms, on the ground floor seven armouries, a C.O. room and Q.M. stores; on the first floor, lecture room, anteroom, &c., and, in the attic, which is restricted to 45 feet midway of the length, the caretaker's apartments.

The partitions are brick; the floors, excepting that in basement, which is concrete, are wood, as also are a number of the partitions, the roof and the stairways. The roof trusses of the hall are iron, the foundation of the drill hall floor is of concrete, the roof-covering is of metal, for the hall, and tar and gravel for the adjunct.

Clerk of works, Emile Tanguay, architect.

Contractors, Jos. Bourque & Cie.

VALLEYFIELD.

PUBLIC BUILDING.

This building which was described in my last annual report is nearing completion. It is being fitted up and furnished and having hot water heating and electric lighting installed.

Plans, &c., prepared by this department.

Clerk of works, Edmond Lemay.

Contractor, Théodore Bélanger.

PROVINCE OF ONTARIO.

ALEXANDRIA.

POST OFFICE BUILDING.

This building which was described in my report for 1904 has been completed and is being fitted up, furnished and supplied with a hot water heating apparatus.

Plans, &c., prepared by this department.

Clerk of works, John R. Chisholm.

Contractor for construction of building, Jos. Bourque.

Contractor for post office fittings, W. C. Room.

Contractor for heating system, Martel & Langelier.

BOWMANVILLE.

PUBLIC BUILDING.

This building which was described in my annual report 1903-04 is completed, fitted, furnished and occupied. A hot water heating apparatus and electric lighting system are installed.

Plans, &c., prepared by this department.

Clerk of work, Ferdinand B. Whiting.

Contractor, Wm. Stuart.

BRANTFORD.

DRILL HALL.

The additions to this building which were described in my report for 1903-04, are progressing and are expected to be completed early in the coming year. Plans are prepared for a hot water heating system.

Plans, &c., prepared by this department.

Clerk of works, L. H. Taylor, architect.

Contractors, Schultze Bros. Co.

POST OFFICE.

Alteration of the external faces of the building and additions to and alterations of the internal fittings were made under the supervision of L. H. Taylor, architect.

BRIDGEBURG.

POST OFFICE.

On October 3, 1904, a contract was entered into for the construction of this building. It is of brick, two and a half stories on a stone basement, the basement portion lined with brick. The building measures 55 x 45 feet, and is bisected by a staircase hall, the brick partition walls of which reach from foundation to roof. In the basement are the furnace and fuel-rooms, lavatory, stairway hall and four other rooms; on the ground floor are the post office, the express office, three other offices and a brick vault; on the first floor three rooms and the staircase hall, and in the attic the caretaker's apartments. The basement floor is of concrete, but the remaining floors, roofs and most of the partitions are wood. The roof covering is of steel shingles on the slopes and galvanized iron on deck.

Plans, &c., prepared by this department.

Clerk of works, Thos. H. Allen.

Contractors, Cutter & Vanderbury.

BURFORD.

ARMOURY.

A site was purchased having a frontage of 90 feet on King street by a depth of 150 feet, having for its easterly boundary the westerly boundary of William street, and, on September 19, a contract was entered into for the construction of the building thereon. It is a wooden building, veneered with brick, and on a stone foundation, having in front a three-story and basement portion 49 feet by 23 feet and in the rear a two-story portion 45 feet by 32 feet. The basement is for bowling alley, shooting gallery, heating furnace and fuel; the ground floor is for cavalry armoury, mobilization store-room, officers' room and sergeants' room; the first floor a lecture hall and two rooms connected therewith, and the third floor two small rooms for storage. The heating is by a hot water system; the lighting is by acetylene.

Clerk of works, L. H. Taylor, architect.

Contractors for construction of building, fittings and heating, Nagle & Mills.

Contractor for lighting, D. C. Wallace.

CHATHAM.

DRILL HALL.

A contract for the construction of this building which is to face on Colborne street, between Wellington street and Macgregor's creek, was entered into on January 30, 1905.

The building is to have a frontage of 160 feet by a depth of 111 feet, exclusive of the projection of two circular angle bastions, and consists of a one-story drill hall 73 feet in breadth by the full length of the building, and a two and three stories basement portion, 28 feet in breadth, exclusive of projections, by the full length of the building. The three story portions consist of the medium, 45 feet of the length and two circular bastions, one at each end, 14 feet in diameter. The basement of the two and three stories portions contains a men's recreation room, two furnace rooms, two fuel rooms, two store-rooms, a lavatory room and a stairway hall; on the ground floor are seven armouries, a C. O. room, a Q.M. store, a lavatory and W.C. room, a stairway hall and the main entrance to the drill hall. On the first floor are the officers' mess, lecture room, ante-room, &c., &c., and on the third floor the caretaker's quarters. The walls are brick with stone dressings and on a stone basement, the partitions are mainly brick as is the lining of the basement. The main hall is floored with wood blocks on concrete foundation and roofed with wood on iron principals, the whole covered with steel shingles. The two and three-story portion of the building has wooden floors, except in basement, and also a wooden roof covered with tar and gravel.

Plans, &c., prepared by this department.

Clerk of works, T. J. Rutley & Sons, architects.

Contractors, J. Pigott & Sons.

COBOURG.

ARMOURY AND GUN SHED.

This building which was described in my report for 1904, is now completed, and is being fitted up with a hot water heating system, armoury and other fittings, furniture, &c.

Plans, &c., prepared by this department.

Resident architect, C. Carruthers.

Contractor, David S. Booth.

HAWKESBURY.

POST OFFICE.

A contract for the construction of this building was entered into on January 18, 1905.

This is to be a two and one-half story brick building with stone dressings and on a stone basement, measuring 39 feet in frontage by 29 feet 6 inches in depth, and having a one-story brick adjunct in the rear, 24 feet in depth by 15 feet in breadth and on a stone foundation. The basement is for the heating apparatus, fuel and storage; the ground floor of the main portion to be the post office, stairway hall, W.C. and three brick porches, and the adjunct is to be the examining warehouse; the first floor is to be the customs offices, and the attic the caretaker's apartments. The basement floor is to be of concrete, but the remaining floors as well as the roof and partitions are to be of wood. The sloping roof is to be covered with steel shingles and the deck roof with tar and gravel.

Plans, &c., prepared by this department.

Clerk of works, Hilaire Maranda.

Contractor, Robert Cameron.

KINGSTON.

CUSTOM HOUSE.

A desk was supplied the appraiser's office and a clock in the long-room. Repairs were effected to heating, plumbing, glazing, gasfitting, shutters and fences, under the supervision of Arthur Ellis, architect, Kingston, Ont.

POST OFFICE.

The delivery wicket boxes and the street delivery boxes were painted and varnished. A clock was supplied to money order office, the flag halyards were renewed, repairs and additions were made to some of the fittings and repairs were effected to glazing, plumbing, heating, lighting, letter-boxes, shelving, water supply service, street boxes and fittings of post office generally. All done under the supervision of Arthur Ellis, architect, Kingston, Ont.

STABLE FOR BATTERY 'B' R. C. ARTILLERY.

A contract for the construction of this building was entered into on April 8, 1905. It is of wood on a foundation of cedar posts, the roof covered with metal and the chimneys built of brick. There is a main portion 53 feet by 48 feet and two lateral portions each 66 feet by 32 feet. The main portion has a ground floor, containing four harness rooms, two feed rooms and a large entrance hall with an undivided loft above; each wing is divided longitudinally by a passage the entire length, having twelve stalls on either side and there is a low loft above. There are drainage and water service.

Plans and specification prepared by this department.
Resident architect and clerk of works, Arthur Ellis.
Contractor, David Booth.

STABLES FOR ROYAL MILITARY COLLEGE.

A contract for the construction of this building was entered into on May 9, 1905. It is a brick building on stone foundations, two stories in height, 98 feet by 38 feet, exclusive of a projection of 2 feet by 30 feet in the middle of rear wall. In the middle 30 feet of the ground floor there are a feed room and a harness room divided by a 12-foot passage which runs from end to end of the building, while the remainder of the ground floor, on both sides of the passage, is divided into stalls and loose boxes; the upper flat is an undivided loft. The walls and chimneys are brick on a stone foundation; the ground floor is laid in concrete and the upper floor and roof is of wood with metal covering. There are drainage and water supply, iron stable fittings, &c.

Plans and specification prepared by this department.
Resident architect and clerk of works, Arthur Ellis.
Contractor, H. W. Watts.

OSHAWA.

POST OFFICE.

On September 2, 1904, a contract was entered into for the construction of this building, on the corner of Wellington and King streets.

It is a two and one-half story brick building, with stone dressings, and a stone foundation, consisting of a main portion 54 feet 6 inches by 37 feet 6 inches, a tower 15 feet square, which is three and a half stories in height, and a one-story and base-

ment adjunct in rear 21 feet 6 inches by 25 feet. The basement floor is of concrete, but the remaining floors, the roof, stairway and partitions are of wood. The sloping roofs are covered with metallic shingles and the deck roofs with tar and gravel. In the basement are heating, fuel and storage rooms; in the main portion of the ground floor are the post office and also a brick vault, two vestibules and a stairway hall, and in the adjunct the examining warehouse and lavatories. On the first floor are five rooms and also a lavatory, a stairway and a passage, and in the attic, are six rooms and also a bath-room, a stairway and a passage.

Plans, &c., prepared by this department.

Clerk of works, Wm. Holland.

Contractor, W. J. Trick.

OTTAWA.

DOMINION ARCHIVES BUILDING.

On September 28, 1904, a contract for the construction of this building on the government property, Nepean Point, was entered into and the work is still in progress. It is to have three stories and basement and measures 100 feet in length by 50 feet in breadth. The walls of the basement are limestone and of the remaining portions Nepean sandstone with limestone dressings. The floors and roof are to be of iron and concrete and the constructive materials throughout mainly non-combustible.

The building is to be divided midway of the length by a hallway 15 feet wide, the rear end of which, from bottom to top contains a stairway, encasing an elevator, the front portion which is a storeroom in the basement, becomes a vestibule on the ground floor and an office on each of the succeeding floors. In the basement the remaining space will be divided into a binding room, a sorting room, a receiving room, an office, a lavatory, three rooms for the caretaker, a furnace room and a fuel room. To the right of the entrance on the three succeeding floors, the space is undivided excepting on the first floor where a portion of the space, 12 feet by 18 feet, is partitioned off as a storing room. To the left of the entrance, on the ground floor, there are five rooms and a passage, but the corresponding space on each of the succeeding floors is undivided.

Plans and specifications prepared by Band, Burritt, Meredith and Ewart, architects.

Clerk of works, Pat. Canty.

Contractor, W. H. MacGillivray.

CENTRAL EXPERIMENTAL FARM.

Three of the residences were hung with electric bells and the grate of the director's residence was relined.

Work done under the supervision of this department.

CENSUS OFFICES, O'CONNOR AND SPARKS STS.

This is a rented building. Twenty-six additional electric lights were installed.

CORRY BUILDING, RIDEAU STREET AND SAPPERS BRIDGE.

This is a rented building. Forty-nine additional electric lights were installed.

EASTERN BLOCK—DEPARTMENTAL BUILDING.

The Privy Council Chamber was cleaned and painted and had the furniture repaired. Of rooms cleaned and tinted there were five in the Finance Department, five rooms in the Indian Department, one room in the Auditor General's Department, two

rooms in Secretary of State Department, and one room in the Privy Council. There was a new ceiling put in long room of Indian Department, and a new floor laid in one of the rooms of Privy Council Department. There were thirty-four articles of furniture made and supplied and twenty-six articles repaired. There were fourteen brass rods and curtains and three chair cushions supplied. There were sixty-one signs written, ninety-seven lights glazed, sixty articles of furniture, &c., renovated, and a quantity of shelving furnished and painted. Steel file cabinets and files were supplied to the Secretary of State, Justice and Indian Departments. Repairs were made to air ducts, drains and cement floor and alteration of water main was effected. A new wash basin was fitted up in each of rooms, Nos. 42, 47, 54 and 63. Electric bell connection was made for rooms 58, 62 and the treasury vaults. Telephone wiring was hung for rooms 105, 107 and 109. Steam pipe connections were made to a room in basement and a heating coil placed in the Privy Council corridor. There were supplied and connected seven portable lights, twenty-one drop lights, two meridian lamps, and three 6-light pendants.

There were minor jobs such as lettering, painting, &c., and joinery. The double windows and summer blinds were taken off, stored, cleaned and put on periodically, and the roofs, footpaths and roads kept free from snow during winter.

Work done under the supervision of this department.

Superintendent, John Shearer, jr.

GEOLOGICAL MUSEUM.

Repairs were made to drain, three cupboards were made and supplied, some articles of furniture were renovated, some lights were reglazed, a gas-stove was supplied and connected in the caretaker's quarters and a gas stand as well as a number of mantles furnished.

Work done under the supervision of this department.

Superintendent, Jno. Shearer, jr.

GOVERNMENT GROUNDS.

On the Lovers' Walk a lavatory building for ladies and gentlemen was built of concrete, fitted up with water closets and lavatory basins—marble divisions, tinted walls, &c. The old tool-house north of the Queen's statute was removed and replaced by one of concrete, the roof of which forms a look-out. The look-out platform at the lion's head drinking fountain, was enlarged and railed with iron. The esplanade in front of the Parliament Houses was paved with Warren's bitulithic, and a part of the lawn near the summer-house graded and sodded to form a bowling green for the use of the members of the House of Commons. The service pipes for watering the lawns at the parliament grounds was extended. A new drinking fountain was placed in Major's Hill Park and an ornamental fountain in the lake there. At the Major's Hill park, new seats were provided ; a large quantity of earth was used in grading, a large quantity of sods for lawns, trees, shrubs and herbacées plants were purchased and planted, as also a large quantity of native ferns and wild flowering plants. Some new species were acquired for the plant-house and green-houses.

Work done under the supervision of this department.

GOVERNMENT HOUSE.

A building 80 feet by 42 feet was built on the lawn for a supper and lounging room for the state ball, and was connected with the house by covered passageways. Further measures to render the attic fireproof were carried out. A steel beam to support billiard-room floor joists was put in and a new hardwood floor laid. The walls of ice-house were renewed. Additions to shelter building at skating rink were

made which doubled the previous capacity and the entire building was painted, repaired, fitted up with extra lights, &c. Two of the chimney shafts were taken down and rebuilt in fire-brick, the stonework of south front was repointed, the cement floor of boiler-house was raised and the terrace stairs at end of tennis court renewed. The house drains were overhauled and put in good order. A new water service was put in from street through cricket ground, hydrant, cocks and hose fitted up. The 2-inch water pipe to lodge was taken up and replaced by new and the gas main was repaired. The unfinished portions of basement and first floor ceiling were plastered, the electric bell wiring thereat put in and the light wiring renewed. There were 785 lights reglazed, 2,375 yards two and three coat painting at the house and 3,497 yards in outbuildings and fences; cleaning and tinting at the house, 1,750 yards and papering 750 rolls; at the laundry and stables, 1,046 yards and 56 rolls respectively; shellacing at the house, 512 yards and bronzing 37 heating coils. A new water closet was built at coach-house; two new steel ranges were installed in scullery and still rooms, a new billiard table was set up in billiard room with a 6-light pendant over, and some chopping boards and waiter trays made for kitchen and pantry. Repairs were made to dairying machines, stable fittings, coal and wood-shed, fences and gates, bed and plant tables in green-houses, hot-bed sash, garden rollers, wheelbarrows and boat-houses were repaired, and the kitchen coppers were retinned and repaired. There was supplied one Steinway grand piano, four toilet sets, a table, a desk, a plate warming cabinet, large quantities of china, glass, crockery, cutlery, linen and carpets, as well as a large number of kitchen, still-room and house-maid's, butler's and steward's utensils. A quantity of furniture, furnishings, plate and bric-a-brac was acquired from Lord Minto at the close of his term of office. The grounds were supplied with fruit trees, shrubs, plants, fertilizers, insecticides, implements, tools, &c., &c. Four hundred and seven lineal feet of sidewalk and crossing, and 380 lineal feet of close board fence were renewed, and 3,120 lineal feet of fence, together with four new gates constructed.

The conservatories were kept in order, the lawns, drives, &c., rolled and otherwise tended. The ice-house was stored with ice. The roofs, paths, slides, rinks, &c., were cleared of snow by the departmental staff, by whom the grounds, lawns, gardens and plant-houses were maintained.

The usual periodic cleaning, packing and unpacking were done; arrangements for and attendance on entertainments were furnished, and the rinks, slides, &c., kept in order.

RIDEAU COTTAGE.

The building was repaired and overhauled before being occupied by the Military Secretary. New floors were laid in five-rooms, as also in passages, kitchens and pantry, in basement. The ceilings and walls were cleaned and tinted and thirteen rooms repapered. New water closets were fitted up to replace the original which were removed and electric bells were installed in lieu of the old pull-bells. The electric wiring was overhauled and in part renewed and new fixtures, &c., installed throughout. The dumbwaiter was rebuilt and new sinks and bath fitted up. Picture moulding was put up in six rooms, and cupboards were made for bed-rooms.

Work done under the superintendence of Wm. Hutchison, clerk of works.

GOVERNMENT WORKSHOPS—O'CONNOR AND QUEEN STREETS.

This building which was acquired by purchase, has been altered, the part facing on O'Connor street by the depth on Queen street has been remodeled and rearranged for use as an office building, and furnished with a hot water heating apparatus. The rear portion has been fitted up for workshop purposes. Eight water closets, ten wash basins,

drainage and water supply pipes were fitted, and above 200 electric lights installed.

Work done under the supervision of the department.

Jno. Shearer, jr., superintendent.

IMPERIAL BUILDING.

This is a rented building on the south side of Queen street, near O'Connor street. A system of electric bells was installed for the offices and a ventilation fan in the water closet. Thirty-four additional electric lights were installed and some of the original lights altered.

Work done under the supervision of this department.

Superintendent, Jno. Shearer, jr.

LABOUR DEPARTMENT.

This is a suite of rented offices, situated on Metcalfe street, opposite the Langevin block.

Five additional electric desk lights were installed.

LANGEVIN BLOCK.

The money order branch of the post office had the long room fitted throughout with steel file cabinets, in the Agriculture Department, the Patent Branch had a like equipment and in the Interior Department nine separate cases were placed. Six rooms were cleaned and painted, thirty-two lights of glass were renewed and twenty-two signs written. Fifty-four articles of furniture, six brass rods and curtains and twenty-nine chair cushions were supplied ; sixty-six articles of furniture were repaired and ten articles of furniture painted or varnished. Electric bells were hung in six rooms; one new sink and one new wash basin were fitted up. There were installed eight meridian lamps, ten portable lamps, twenty-five drop lights and a number of shades.

Work done under the supervision of this department.

John Shearer, jr., superintendent.

BRANCH OF ROYAL MINT.

A contract for the erection of this building was entered into January 5, 1905.

It is situated at the intersection of Sussex and Cathcart streets having the Ottawa river in the rear. Excepting for some minor projections of the front, this building is a rectangular parallelogram 224 feet from north to south by 164 feet from east to west. The main block occupies the south frontage by a depth of 45 feet, excepting in the middle where a portion, 45 feet broad projects 14 feet to the front and 21 feet to the rear; this main portion has two stories and basement with an additional story on the middle portion. In the basement of this block are to be the furnace and fuel rooms and stores; on the ground floor are mint office, furnace room, stronghold, bronze store and offices of chief clerk, assayer and assistant assayer ; on the first floor the laboratory, deputy master's staff and quarters, and on the second floor a large room for clerks. To the north of this block is a courtyard 70 feet by 90 feet, north, east and west of which are the remaining buildings, all of which are but one story and which together with the main building inclose the courtyard excepting an entrance 12 feet in width at the eastern side behind the main building. On the western side, commencing at the main building, there are weighing room, plan room, washing and pickling, kitchen, bath, store, W.C., kitchen, bath and W.C.; on the eastern side from the yard entrance northward are stronghold, melting house office, melting house, grinding room, kitchen, w.c., bath, gas plant and die room; all these, both sides, have no basement. The midde 100 feet in length of the north side is devoted to boiler-house and fuel rooms in the base-

ment, the boiler house being carried up through the ground floor, and to engine, dynamo and mechanics rooms on the ground floor. To the southward of the boiler room, is a stronghold and beyond this the rolling and cutting room with the superintendent's room attached. The basement walls are granite and the walls above of Nepean sandstone with granite dressings. The construction is fireproof.

Plans, &c., prepared by this department.

Clerk of works, Geo. Stockand.

Contractors, Sullivan & Langdon.

ROYAL OBSERVATORY, TRANSIT HOUSE.

A contract was entered into on May 16, 1904, for the construction of an addition to the western portion of the observatory consisting of a ground floor and basement on the same level as the corresponding floors of the present building and roof on the same level as that of the present building. There are first, one room, 20 feet square inside and another, 33 feet by 15 feet inside. The walls are stone, similar in construction to those of the present building but lined with brick, and having an inner wall of sheet-iron separated from the outer wall by a narrow space. The roof and the ground floor are concrete and iron and the basement floor concrete. The walls and roof are provided with shutter openings extending from 3½ feet above ground floor level to and over the roof from side to side. The walls are provided with openings, louvred in slate, to allow a free circulation of air. For the support of the instruments a number of concrete piers are to be constructed, resting on the basement floor and extending up through and above ground floor.

Plans, &c., prepared by this department.

Clerk of works, P. Canty.

Contractors, McGillivray & Labelle.

PARLIAMENT BUILDINGS.

New skylights were erected over the Senate Chamber, passages and stairway, and four of the House of Commons skylights were repaired. A new lavatory and water closet was fitted up for the Senate on the ground floor and alterations were effected in the House of Commons lavatories. The Senate Chamber galleries were overhauled and cleaned, the floors covered with linoleum and some new seats provided. A water closet and lavatory was fitted up for the parliament library and a new lavatory basin each for the Speaker of the Senate and the Accountant of the House of Commons. A 12-inch electric fan was supplied to the Librarian's office. Portable desk lamps were supplied, one to the Librarian's office, one each to rooms 29, 41, 43, 59, 69 and 67. Electroliers were intalled, three light pendants, one each in Assistant Clerk of votes' office, and rooms 25 and 51; a 5-light pendant and a 4-light ceiling cluster in room 38; 2-light pendants, one each in Law Clerk's office and new room in House of Commons attic. Four drop lights were installed, one in room 68, two in room 58, four in room 56, two in room 10 and one in the tower-room. A moving electric fixture was installed in room L. A division bell was hung in room 66, two heating radiators in bath-rooms, extra steam heating coils in room 30, and an extra ventilation pipe in the restaurant kitchen.

Repairs were made to brickwork of ranges, concrete steps, ice-box, &c., In the House of Commons, 9 rooms were cleaned, painted, &c., as also corridors ; twenty-three lights of glass were supplied, six signs painted, eighteen articles of furniture renovated. In the Senate, the Speaker's quarters and the Housekeeper's quarters were cleaned and painted and nine articles of furniture renovated. Generally seventeen articles of furniture were made as well as four brass rods and curtains and some shelving, steel filing cases, &c.

The carpets were taken up, cleaned and relaid, the double windows and summer blinds were taken off, stored, cleaned and put on periodically, and the roofs, roads and footpaths kept clear of snow during the winter.

Work done under the supervision of this department.

Superintendent, J. Shearer, jr.

CITY POST OFFICE.

Plans and specification were prepared for the additional story and the restoration of the attic and cockloft referred to in my report of last year and the work is in progress and is expected to be completed early in the next fiscal year. The cockloft is to be finished as rooms, for storage and other purposes, and an elevator is being put in with a travel from basement floor to cockloft. The ground floor is to have hot water heating served by the furnaces in the sub-basement, while the upper floors are to be heated by steam served by the boiler in basement.

Plans and specification prepared and work supervised by this department.

Clerk of works, Samuel Adams.

PRINTING BUREAU.

On January 13, 1904, a contract was entered into for a one-story addition, 50 feet in length by 53 feet in breadth to the north of the west wing. The walls are to be brick on a stone foundation, the ceiling of brick and iron and the floor cement concrete. There is a single row of columns lining with those of the press-room and supporting the ceiling. Above the ceiling is a tar and gravel roof covering.

On July 6, 1904, a contract was entered into for three additional stories on the foregoing; on May 5, 1905, a contract was entered into for the removal of the roof of the entire original building and the construction of a full story in brick, roofed in concrete and steel covered with tar and gravel and, on July 5, 1905, a further contract was entered into for another additional story on the entire building inclusive of the addition.

Plans, &c., prepared by this department.

Clerk of works, P. Canty.

Contractors, Wm. Doran and R. M. Devlin.

PRINTING BUREAU—MINOR REPAIRS.

A new sink and an electric buzzer were placed and connected. A new tank was put in. A number of articles of furniture were supplied and a number repaired. Repairs and renewals were made to woodwork, glazing, painting, plumbing, &c., requiring a number of workmen, the plumbing and steam fitting repairs requiring a man and helper constantly.

Work done under the supervision of the department.

Superintendent, Jno. Shearer, jr.

REPAIRING STREETS, &C.

The pavement of yard at Geological Museum was repaired and partly renovated; the sidewalks on bridges were repaired and partly renovated; Wellington street was in part remetalled; scraping, cleaning and general repairs were done to the various road ways, footpaths and streets under the control of the department. Rubbish, scrapings and ashes were removed from the east block, west block, Langevin block, parliament building, the workshops, printing bureau, the museum, the several rented buildings and the various streets, and deposited at Nepean Point; the grass at Printing Bureau, about Cartier Square, Wellington street, two bridges, Survey Office, Fisheries Museum and

Geological Museum was kept clipped, manure was drawn on and removed therefrom, and the ashes removed from the boiler houses and furnace rooms of the various buildings; waste paper was removed periodically from all the buildings; the roadways, sidewalks, footpaths, roofs and yards kept clean of snow during the winter.

Work done by the departmental staff.

SUPREME AND EXCHEQUER COURTS.

Three additional electric lights were installed.

Work done under the supervision of this department.

Clerk of works, F. Breton.

VICTORIA MEMORIAL MUSEUM.

A contract was entered into on December 28, 1904, for the construction of this building which is to be erected on a plot of ground bounded by McLeod, O'Connor, Argyle and Elgin streets, situated about one mile south of the parliament building and across the southern end of Metcalfe street, the northern end of which is faced by the parliament building.

The building is designed to consist of a main curtain 219 feet long by 53 feet deep, having a wing at either end 54 feet by 143 feet 6 inches, a tower 58 feet square in front of the middle and an amphitheatre 81 feet broad by 76 feet deep, in the rear, giving a total length of 392 feet frontage by a total depth of 187 feet. The building is four stories, basement and sub-basement, excepting the tower which has an additional story. The general height from ground line to top of parapet is 106 feet, from ground line to top of tower parapet 220 feet, and from basement floor to attic ceiling 103 feet. The walls are to be of stone, the partitions brick and the floors, roof, &c., mainly of iron, terra cotta and other non-combustible materials.

The eastern wing from basement to attic is to be occupied by the fisheries museum and the art gallery; the amphitheatre by the furnace room in basement, the lecture hall and gallery above and the geological survey library at the top. Exclusive of the tower, main hall and amphitheatre, the building is to be divided as follows :— The basement, second and third floors into offices and the ground and first floors each into four large museum rooms.

Plans and specifications prepared by this department.

Clerk of works, P. Canty.

Contractor, George Goodwin.

WESTERN BLOCK.

A new elevator with a travel from basement to attic was installed in the well of the main stairway on the southern frontage and an entrance to the basement opened at the eastern side of the entrance steps to ground floor.

Rooms were cleaned and tinted, three for the Marine Department, fifteen for the Public Works Department, eight for the Railways and Canals Department. Steel filing cases were supplied, two to the Mounted Police, one to the Railways and Canals and two to the Marine Department; also the correspondence branches of the Customs and Inland Revenue Departments were fitted up with steel cases, the latter having a gallery. Ninety-six articles of furniture were made for the various departments ; thirty-seven articles of furniture were repaired; nine chair cushions were supplied; six new floors were laid; eight brass rods and curtains were supplied; 130 signs painted and written; 105 articles of furniture renovated; 103 lights glazed and a quantity of shelving, coat hooks, &c., &c., supplied. Repairs were made to cement flooring, plaster, stonework and tinsmithing. The steam heating apparatus was altered to allow of the installation of a Webster vacuum plant of pumps and receiver and the Webster valves were

attached to all the coils and radiators. New coils or radiators were placed, two in the Public works Department, three in Railways and Canals Department and two in Inland Revenue Department. A telephone line was run from the Public Works Department to the ship-yard and a ten stations automatic switch telephone was installed between the office of the Honourable the Minister and those of the chief officers of the various branches. The new cement laboratory was fitted up with plumbing and steam fitting. Electric bells were hung and indicators furnished for Trades and Commerce and Public Works. Portable desk lamps were supplied, fifteen in Public Works Department, fifteen in Marine and Fisheries Department, seven in Customs Department, two in Justice Department, three in Trade and Commerce Department and one in Railways and Canals. Drop lights were placed, seven in the Public Works Department, twelve in the Railways and Canals, six in the Inland Revenue Department, seven in the Trade and Commerce Department, twenty-two in the Marine and Fisheries Department and twenty-seven in the Customs Department. Electroliers were fixed in the Public Works Department, one of four lights and five of three lights, in the Marine and Fisheries Department, one of four lights and in the Customs Department one of three lights. One bracket was fixed in the Marine and Fisheries Department and one in the Customs Department. One electric heater was supplied the Public Works Department and one electric fan to the Marine and Fisheries. A new lavatory basin was placed in 184 and an electric heater in room 50.

There were also a large number of minor jobs of painting, lettering and of joinery. The roofs, roads and footpaths were kept free from snow. The winter sashes and summer blinds were cleaned, put on, taken off and stored periodically.

Work done under the supervision of this department.

Superintendent, J. Shearer, jr.

ADDITION TO THE WESTERN BLOCK INCLUDING ALTERATION OF RECORD WING OF EXTENSION.

A contract was entered into on April 10, 1905, for an addition to this building to extend from the eastern end of the records wing of extension eastward to the northern end of the east wing of the original building, which it will abut and overlap, and further, for the removal of the roof and galleries of the aforesaid wing, the addition of a story thereto similar to the attic story of the extension, alteration of window openings, &c., therein, and the removal of the east end wall of the same. The addition (83 x 36 feet), is to be similar in breadth to the records wing, excepting that on the north side at the east end of the addition, where it will abut and overlay the original building, there is to be a tower 25 feet square projecting 3 feet from the face of the north wall, and that there is to be a projection from the south wall 10 feet by 20 feet in breadth for a stairway. The addition is to continue the lines of the extension throughout all the stories, excepting in the tower, which is to be similar in all respects to the tower on the south front of the original building. The materials are generally similar to those used in the extension, but the roof is built of concrete and iron.

Plans, &c., prepared and work supervised by this department.

Contractor, George Goodwin.

WOOD'S BUILDING, QUEEN STREET.

This is a rented building occupied by the Customs Department, the Board of Railway Commisioners and a branch of the city post office. An additional electric bell, an electric fan and twenty additional electric lights were installed.

Work done under the supervision of this department.

Superintendent, Jno, Shearer, jr.

OTTAWA.

BUILDINGS AND GROUNDS GENERALLY.

In addition to the works mentioned in the foregoing there are innumerable smaller works, *i.e.*, there are items of repair done by the roofers, the masons, plumbers and other trades; items taking each a number of days work of a tradesman besides material to accomplish. Besides all these, in connection with the various other buildings, the property of the government, there are similar works of repair, painting, furnishing, tinting, &c., in connection with a number of rented buildings; also such works as repairs to and renewals of coal and other sheds as well as works of a general character, such as the erection and taking down and storing of porches, winter boarding outside steps, &c., &c., all of which are done by the departmental staff.

SAULT STE. MARIE.

PUBLIC BUILDING.

A contract was entered into on November 23, 1903 for the construction of this building, which is situated on the corner of Queen and East streets, with frontage of 71 feet 6 inches and 119 feet 6 inches respectively. It consists of a main portion, 71 feet 6 inches by 56 feet of three stories, including an engaged tower 16 feet square extending one story above attic, and a wing 63 feet 6 inches by 41 feet 4 inches in the rear, all of which, excepting a portion adjoining main building and which is devoted to stairway halls, W.C.'s, bath-rooms, vaults and entrances, is but two stories and basement. The basement and ground floor external walls are of stone, lined with brick, and those of the remaining stories, brick with stone dressings—the partitions are in part brick and the remainder wood—the beams and columns throughout are iron and the joists, floors (except that of basement) and roof of wood, the flat roof covered with tar and gravel. The basement, excepting a portion of wing, is excavated and floored with concrete; it is to contain heating apparatus, fuel, elevator machinery, &c. The ground floor, main portion, is for the post office and the wing for the examining warehouse, Gas Inspector, weights and measures, lavatories, P.O. vault, mail entrance, vestibule and main stairway. On the first floor are to be the customs and inland revenue long-rooms, the offices of the Collectors of customs and inland revenue and Fishery Inspector, an armoury, a lavatory, a stairway hall and two brick vaults. On the second floor are the apartments of the caretaker. Centrally situated on the roof of the main portion, 25 feet by 16 feet is a skylight covering a light shaft of same dimensions extending down to the ground floor ceiling.

Plans, &c., prepared by this department.
Clerk of works, James Thomson, architect.
Contractors, MacPhail, Maccarty & Wright.

ST. CATHARINES.

DRILL HALL.

This building which was described in my report for 1904, is still in progress. Plans for a hot water heating apparatus and for armouries' fittings have been prepared.

Plans, &c., prepared by this department.
Resident architect and clerk of works, G. Dolson.
Contractors, Messrs. Sullivan & Langdon.

SANDWICH.

POST OFFICE.

On June 12, 1905, a contract was entered into for the construction of this building which is to be two and a half story brick with stone dressings on a stone base-

ment, measuring on plan 38 feet frontage by 29 feet depth. It is to contain on the ground floor the post office, W.C. and stairway hall; on the first floor four rooms, passage and stairway; in the attic three rooms, bath, W.C. and passage, and in the basement heating apparatus and fuel. The floors, excepting that of the basement, which is to be concrete, together with the partitions and roof, are to be wood, the last named covered with metal shingles on the slopes and tar and gravel on the deck.

Plans, &c., prepared by this department.

Clerk of works, John Maclean.

Contractor, Geo. Alfred Proctor.

STRATFORD.

ARMOURIES.

A contract for the erection of this building was entered into on November 25, 1904, and the work is in progress.

The building is of brick with stone dressings, on a stone basement, and measures 130 feet by 60 feet, exclusive of two circular bastions which occupy the angles of one side of the building. The building contains in the basement floor a shooting gallery, a bowling alley, boiler and fuel rooms, lavatory and stairway hall; on the ground floor two officers' rooms, C.O. room, orderly room, officers' lecture room, Q.M. room, band room, eight armouries, two ante-rooms, lavatory, stairway hall entrance and passage; on the first floor a lecture room 105 feet in length by the width between the outside walls, stairway hall, sergeants' mess and caretaker's apartments, and on the second floor, which is but 25 feet in depth by the breadth of the building, a store-room and caretaker's apartments.

The partitions are in part brick and the remainder iron and plaster. Excepting the basement floor, which is concrete, all the floors and roof are of wood, excepting that the roof is trussed with iron.

Plans, &c., prepared and work supervised by H. C. Macbride, architect, London.

Contractors, Nagle & Mills.

TORONTO.

GENERAL POST OFFICE.

Extensive improvements were made in the electric wiring; new fittings were installed in the dead-letter office; alterations of the drains were effected and the street letter boxes were painted. All under the supervision of S. G. Curry, architect, Toronto.

The lath and plaster ceiling of the basement was removed and the joists and underside of floor boards together with all the basement walls from Lombard street to Adelaide street were whitewashed two coats. The basement lavatory and dining-room and the outside lavatory as well were painted. Whitewashing, painting, minor repairs, plumbing, steamfitting and other routine work carried out, by the mechanical staff, under the supervision of H. E. Hamilton, engineer, public buildings, Toronto, Ont.

EXAMINING WAREHOUSE.

The hardware department was altered to give suitable accommodation for the gauges, removed from the custom house and a new hardware department was fitted up on the second floor of the Yonge street front. The second floor was fitted up with steam heating and electric lighting.

A four-story addition was constructed for the use of the Dominion Express Company.

Work supervised by S. G. Curry, architect, Toronto, Ont.

The boiler-room, engine-room and belt-room were whitewashed and painted. The walls of the express-room were whitewashed and the ceiling tinted, as also the flat formerly occupied by the Dominion Express. These works as well as repairs to heating, plumbing, gasfitting, &c., window cleaning, removal of snow and other routine work was done by the mechanical staff, under the supervision of H. E. Hamilton, engineer, public buildings, Toronto, Ont.

POSTAL STATION 'C.'

A portion of the first floor was divided by partitions to form apartments for the caretaker and fitted up with plumbing, &c. A hot water heating apparatus is to be fitted up.

Work supervised by S. G. Curry, architect, Toronto, Ont.

CUSTOM HOUSE.

Repairs and renewals of steamfitting, plumbing, whitewashing, window cleaning, snow removal, double window attendance and routine work generally done by the mechanical staff, under the supervision of H. E. Hamilton, engineer, public buildings, Toronto, Ont.

TORONTO JUNCTION.

PUBLIC BUILDING.

This building, which was described in a previous report, is fitted up, furnished with a hot water heating apparatus and with electric lighting.

Plans, &c., prepared by this department.

Clerk of works, John Patterson.

Contractors for construction, Joy Needham.

Contractors for fittings, T. P. Wright & Sons.

Contractors for heating, Martel & Langelier.

WINGHAM.

POST OFFICE.

This building which was described in my report for 1904, is still in progress.

Plans, &c., prepared by this department.

Clerk of works, Wm. Nicholson.

Contractor, S. S. Cooper.

WOODSTOCK.

ARMOURIES.

On November 25, 1904, a contract was entered into for the construction of this building.

The building is of brick on a stone basement and measures 140 feet by 60 feet exclusive of the circular and octagonal angle bastions.

The basement which is floored with concrete and lined and partitioned with brick, contains bowling alley, shooting gallery, boiler room, fuel room, stairway hall and lavatories; on the ground floor are a stairway hall, two officers rooms, a C.O. room, eight

armouries, band room, Q.M. room, two ante-rooms and lavatory; on the first floor is a lecture hall, 115 feet in length by the full width between the outside walls, also a paymaster's room, sergeants mess, lavatory and two rooms for caretaker; the second floor is limited to a strip at end of building 25 feet in length by the breadth of the building and contains caretaker's apartments and sergeants stores. The partitions throughout are mainly either brick or iron and plaster; the floors and roof are of wood.

Plans, &c., prepared by H. G. Macbride, architect.

Clerk of works, Alex. White.

Contractors, Nagle & Mills.

PROVINCE OF MANITOBA.

DAUPHIN.

IMMIGRATION HALL.

A fence was constructed under the supervision of Jas. Greenfield, Superintendent of public buildings, Winnipeg, Man.

EAST SELKIRK.

IMMIGRATION HALL.

The pump and windmill were repaired and a box stove supplied and put up under the supervision of Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

VIRDEN.

ARMOURY.

On December 14, 1904, a contract was signed for the construction of this building which is of wood, two stories, on a stone basement, and measures on plan, 62 feet 10 inches by 31 feet 8 inches. The basement is floored with concrete and is to contain the fuel and the heating furnace; on the ground floor is to be the cavalry mobilization store, cleaning room, sergeants room, and a room 30 feet by 28 feet, and on the first floor, a cavalry armoury, 46 feet by 30 feet, a C.O., an orderly room and a stairway hall.

Plans, &c., prepared by this department.

Clerk of works, T. B. Mitchell.

Contractor, Wm. Henry Ireland.

WINNIPEG.

MAGAZINE.

A contract for the construction of this building was entered into on December 14, 1904. It is a one story wooden building on a concrete foundation having a concrete floor covered with wood flooring. The walls and roof throughout are covered with copper. It measures 67 feet by 21 feet and is 14 feet from floor to ceiling.

Plans, &c., prepared by this department.

Contractors, J. & J. McDiarmid.

WINNIPEG.

EXAMINING WAREHOUSE.

A stove, a letter box and a sign were supplied. Repairs were made to furnace, plumbing, woodwork and furniture under the supervision of Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

CUSTOM HOUSE.

A new system of plumbing was fitted up, one room tinted, pigeon-holes and window guards were furnished and repairs were made to boilers and plumbing.

Work supervised by Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

LANDS OFFICE.

Additional plumbing was fitted as well as plumbing repairs done, a pigeon-hole case and some grate bars were supplied and repairs done to woodwork, pipes, &c., under the supervision of Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

POST OFFICE.

The entire plumbing system was renovated and improved, the heating system was altered and added to and repairs were made to elevator, brickwork, glazing, woodwork, &c. The heating surface painted and the basement kalsomined.

Work supervised by Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

IMMIGRATION HALL.

Electric light was installed, the walls and ceilings were covered in part with metallic plates, plumbing was fitted up and beds, filters, furniture, range, &c., supplied under the supervision of Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

IMMIGRATION BUILDING.

The contract for the construction of this building was entered into on August 22, 1904.

It is being erected at the Canadian Pacific Railway station, measures 200 feet in length by 61 feet in breadth and consists of four stories and basement. The ground floor walls and basement walls are of stone, lined with brick and those of the remaining stories are of brick. A number of the partitions are of brick and the remainder of iron and plaster, the floor of basement is concrete, but the remaining floors and roof are of iron and concrete, the latter covered with copper. The building is divided into three sections; the middle has in the basement the fuel and furnace rooms, on the ground floor the commissariat and the first, second and third floors the dormitories; the right section has in the basement the baggage-room and on the remaining floors dormitories, while the left section has in the basement the laundry and lavatories, on the ground floor the offices for the Interior Department administrative staff, and in the remaining flats apartments for the caretakers. On each floor there are separate baths, lavatories and W.C.'s for the sexes.

Plans, &c., prepared by this department.

Contractors, Kelly & Mitchell.

Clerk of works, Jas. Chisholm.

WINNIPEG.

NEW POST OFFICE.

On November 22, 1904, a contract was entered into for the construction of this building which is designed to be erected on Portage avenue, and which is the third building for a like purpose erected by the department since the year 1875. The first and second buildings were erected on the same site, on the corner of Main and Owen streets, the latter of which street was subsequently renamed Macdermott avenue; the first building was commenced during the fiscal year 1874-75, and completed during 1875-76, the second commenced during 1884-85 and completed during 1886-87.

The new building is to have 134 feet frontage, on Portage street, by 156 feet in depth; to be of four stories and basement, excepting a strip 39 feet in depth extending the full street frontage, which is to be six stories and basement.

There is to be a basement the full size of the building; the ground floor throughout is to be undivided and contain two treasury vaults, an elevator and stairways; the first and second floors are to be divided into passages and rooms; the third floor is undivided and the fourth and fifth which extend along the entire frontage but are 30 feet in depth are to be used as store-rooms and caretaker's rooms. The building is of brick on an iron and steel foundation, the entire front wall on Portage avenue is to be faced with stone, cut and carved. The constructive materials in the main are non-combustible.

Plans prepared and work supervised by Darling & Pearson, architects, Toronto, Ont.

Contractors, Kelley, Bros. Coy.

Clerk of works, Robert Wilson.

WEIGHTS AND MEASURES OFFICE.

Repairs were made to plumbing and furniture, under the supervision of Jas. Greenfield, superintendent of public buildings, Winnipeg, Man.

POST OFFICE (TEMPORARY).

New parcel bunks were constructed, the trucks were lettered, some steel cabinets were supplied and furniture and electric bells repaired. Two desks and a chair were supplied the office of the Inspector of Railway Mail Service and the office of the P.O. Inspector, a pigeon-hole cabinet.

Work done under the supervision of Jas. Greenfield, surperintendent of public buildings, Winnipeg, Man.

NORTH-WEST TERRITORIES.

MOOSEJAW.

PUBLIC BUILDING.

On January 13, 1905, a contract was entered into for the construction of this building, two and a half stories of brick on a stone basement and with stone dressings, 58 feet by 36 feet, with a one story and basement adjunct, at end, 15 feet by 35 feet, on a site at the corner of Fairford and Main streets. The basement is for heating, fuel and stores, the ground floor main portion is for the post office and the adjunct for the examining warehouse; the first floor has the customs long room and three offices, and the attic the caretaker's quarters. There is to be a brick vault both on ground and first floors, and a lavatory room in the adjunct.

The basement floor to be of concrete, but the remaining floors, as well as roof and partitions, are wood, the roof covered with steel shingles on slopes, and tar and gravel on deck. The basement walls are to be lined with brick.

Plans, &c., prepared by this department.

Contractor, Patrick Navin.

Clerk of works, Robert E. Doran.

PRINCE ALBERT, SASK.

PUBLIC BUILDING.

On January 21, 1905, a contract was entered into for the construction of this building which is to be two and a half stories and basement, situated on the corner of Church and Third streets with frontages thereon of 110 feet 6 inches and 116 feet respectively. The depth throughout is to be 43 feet from front excepting at the extreme end of the Third street wing where there is to be a one story adjunct in rear, 35 feet in depth by 33 feet broad. The foundations are to be concrete, the basement of stone, lined with brick, the remaining walls of brick with stone dressings. The basement and ground floor partitions and some of those of the first floor are to be of brick and the remainder of wood. The floor of the basement is to be of concrete and the remaining floors as well as the roofs are of wood, the roofs to be covered with steel shingles on the slopes, but tar and gravel on the deck. The lavatories are to have tiled floors and tiled dados.

The basement is to contain a boiler room, a guard room, a lock-up, six cells, a brick vault, three lavatory rooms, two stairway halls and six store rooms; on the ground floor is to be the post office, customs long room, Collector's office, examining warehouse, mail entrance hall, five rooms and two vaults for the Interior Department, a brick vault each for post office and customs, four stairway halls, four vestibules and one entrance hall; on the first floor are to be court room, offices for lawyers, witnesses, jury, sheriffs and clerks, library, three spare offices, three stairways, two lavatory rooms and passages; the attic on Church street is unfinished and the remainder is to be laid out as caretaker's quarters.

Plans, &c., prepared by this department.

Clerk of works, Wm. Knox.

Contractors, Chas. Lemoine & Co.

RED DEER, ALBERTA.

COURT HOUSE.

This building which was described in my report of 1904, has been completed and is being furnished with a hot water heating system.

Plans, &c., prepared by this department.

Clerk of works, Hugh Clarke.

Contractors for construction of building, Johnston & Tait.

Contractors for heating, Morrison & Johnston.

PROVINCE OF BRITISH COLUMBIA.

KAMLOOPS.

PUBLIC BUILDING.

The electric lighting fixtures were supplied and put in position and a new heating radiator placed in hall.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

NANAIMO.

PUBLIC BUILDING.

The addition to this building which was described in a previous report has been completed and a hot water heating system put in the entire building. The new portions were wired and the original building re-wired for electric light. A cement concrete sidewalk was laid along the entire front and the south end of original building; retaining walls of rubble masonry with cut stone coping were erected at northern and southren sides of property; the old stone wall was pointed in cement mortar and a concrete roadway was laid from examining warehouse to Main street. New lock boxes were supplied and fitted in post office; a door was changed to form a window and a window to form a door; the floor in post office was relaid; the vaults were shelved and furnished with fixtures, the street letter boxes and flag pole were painted; a partition was built around the ladies lavatory in basement; cast iron posts and wrought iron pipe fence was erected; a ventilator was made in skylight over long room of custom house, the windows at entrance were lettered and there were supplied a clock, rubber mats, snow shovels, brass face plate for letter boxes and some articles of furniture.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

NELSON.

PUBLIC BUILDING.

A counter railing with wickets, locks and glass shelves was supplied to customs department and the electric light was extended in post office.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

NEW WESTMINSTER.

PUBLIC BUILDING.

The flag-pole was painted and the ball regilded. The street letter boxes were repainted and there were supplied two chairs, a typewriter desk, a stool and a number of locks.

Work done under the supervision of Wm. Henderson, of this department, Victoria, B.C.

ROSSLAND.

DRILL SHED.

This building which was described in my report last year has been completed, fitted up and furnished.

Plans, &c., prepared by this department.

Clerk of works, R. W. Grigor.

Contractor for construction of building, fittings, lighting and heating, Geo. Gillet.

PUBLIC BUILDING.

Ten window shades, some electric lamps and shades, and some post office locks were supplied under the supervision of Wm. Henderson, of this department, Victoria, B.C.

VANCOUVER.

PUBLIC BUILDING.

The footpath on Pender street frontage and that in lane at rear were graded, concreted, curbed and laid with wood blocks. A portion of the first floor hallway was taken to increase long room and a new door cut in wall of long room; the sorting-room skylights were fitted with prismatic glass; a still and an oven were fitted in gas-testing room; the street letter boxes were painted and office boxes lettered and numbered; a new stamp vendors office was constructed; a black-board was fitted up in hallway; two transoms were fitted up in dead-letter office and one in examining warehouse; a sorting case was extended; the office was fitted up; two pairs of blinds were supplied; the sewer was cleaned, the plumbing overhauled, some closets reset and the coal-chute covered with galvanized iron. Two tables, two cases, shelving, bag hooks, stools, a desk, chairs, book-rack, door springs, paper box, notice board and drawers were supplied; a lavatory basin was fitted up in customs office. The flag-pole was painted and ball regilded. Repairs were made to roofs, flooring, post office, drawers and pigeonholes, and the doors and windows were painted.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

VICTORIA.

INDIAN AFFAIRS AND MARINE OFFICE (OLD CUSTOM HOUSE).

A hot water heating system was installed; new gutters and down-pipes were provided and fixed; the deck roof was flashed with galvanized iron and covered with felt and gravel; the sloping roofs were slated; a platform was constructed in rear of the building; the tank shed was rebuilt and fitted with gutters and down-pipes; the roofs of sheds on wharf were shingled; the furnace-room was floored in cement; a notice board was provided; the flag-pole and the dormer cornices were painted and some minor work of repair effected.

Works supervised by Wm. Henderson, of this department, Victoria, B.C.

ORDNANCE STORE.

A cement sidewalk and approaches to gateway and main doors were laid along Menzies street frontage of government property, under the supervision of Wm. Henderson, of this department, Victoria, B.C.

CARETAKER'S QUARTERS.

A similar sidewalk to that mentioned in foregoing was laid under the same supervision.

OLD POST OFFICE BUILDING.

Plumbing repairs were made to water closets, lavatory basins, taps and tanks, The flag-pole was painted and the ball regilded.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

PUBLIC BUILDING.

A platform and steps was constructed for the paper burning furnace; pigeonhole cases were supplied and placed in post office; a truck for mail carrying was constructed; the street letter boxes and the flag-pole were painted; carpet, linoleum and

blinds were supplied to the stamp vendors office and brass plates to the post office lockers; some new lights were installed and repairs were made to plumbing, brass-work, elevators, electric bells, electric wiring and lights, plastering, sealing wax heater, heating apparatus and office furniture.

Work supervised by Wm. Henderson, of this department, Victoria, B.C.

WILLIAM HEAD.

QUARANTINE STATION.

A residence for the electrician, quarters for the guards, a brick bath house for the first-class passengers, and a stable and outbuildings were erected; the verandah of the Superintendent's residence was extended and the cellar floor concreted; a bay window was added to the caretaker's residence; the kitchen plastered and a chimney and bay window built at watchman's cottage; a new hot water heating apparatus was fitted and a new drain laid in Superintendent's residence; brick foundations were put under shed at rear of main hospital and partition between power-house and disinfection room; a brick storage battery room with concrete floor was erected; a galvanized iron smoke stack was fixed on the Captain's residence; three sentry boxes and a platform were built for guards; the disinfection shed was fitted with a steam heating apparatus and the isolation hospital with a new boiler; two sets of steps were constructed at main hospital; a brick wall with large double gates was built between end of first-class passengers bath-house and the shore for the convenient handling of suspects; the doors and windows throughout the station were fitted with fly-screens; the grounds were in part levelled, walks gravelled and repaired and grass seed down; rock was blasted out in front of disinfecting building and windows throughout the station in part re-glazed. The following were painted:—Interior of Superintendent's residence, laboratory building, caretaker's residence, laundry and Captain's residence; exterior of the isolation hospital, dining-room of first-class detention building, Superintendent's sheds and a number of fences. The power and boiler houses were kalsomined. Two hundred Hoskins double tiers ships berths, forty hospital spring bedsteads, were supplied as also a spring-wagon with rubber tires, baths, wash basins, sprays, hoppers; and a 30-foot spar for steamer *Earl*. The floor in power-house was repaired and repairs were made to the residences of the Superintendent, his assistant, the Captain, the engineer and the watchman, to the main hospital, Japanese building, first-class detention building, Superintendent's stable, store-room, large gates, electric light plant, fences, &c., &c.

Plans, &c., prepared and work supervised by Wm. Henderson, of this department, Victoria, B.C.

Repairs were made to pipe line including the laying of 1,000 feet of new 4-inch cast iron pipe; the extension of wharf at eastern end and the enlargement and alteration of the disinfecting station and approaches; and repairs to and building and gravelling roads and drives on the quarantine grounds.

Work done under the supervision of this department.

YUKON TERRITORY.

BONANZA.

MINING INSPECTORS OFFICE.

This building was maintained, heated, lighted and had scavenging service under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

CARIBOU.

MINING INSPECTORS OFFICE.

The building, which is a rented one, was maintained and heated under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

CLEAR CREEK.

MINING RECORDERS' OFFICE.

This building was maintained under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

DAWSON.

ADMINISTRATION BUILDING.

An addition to vault of Gold Commissioner's office was constructed; the grounds were improved; general repairs to the building were effected; the building was maintained, heated, lighted and served with water and ice and scavenging was done. All under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

COURT HOUSE.

Some general repairs were effected; the building was maintained, heated, lighted, and served with water and ice and scavenging was done under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

GOVERNMENT HOUSE.

The grounds were improved; some heating radiators were installed in the building and some general alterations and repairs effected. The building was maintained, lighted, heated and served with water and ice. All the foregoing under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

POLICE COURT.

This building was maintained, lighted, heated, served with water and ice and scavenging was done and had some minor repairs effected, all under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

POST OFFICE.

General repairs were effected; the building was lighted, heated, maintained and served with water and ice and scavenging was done all under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

WAREHOUSE.

This building had water service and maintenance under the supervision of S. A D. Bertrand.

DOMINION CREEK.

MINING INSPECTOR'S OFFICE.

General repairs were effected and the building was maintained, heated and lighted under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

DUNCAN CREEK.

MINING INSPECTOR'S OFFICE.

This building, which is a rented one, was maintained, heated and lighted under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

FORTY MILE.

RECORDER'S OFFICE.

This building was maintained and heated under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

GLACIER CREEK

RECORDER'S OFFICE.

This is a rented building. It was generally repaired, heated, lighted and maintained under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

GOLD-RUN.

MINING INSPECTOR'S OFFICE.

This is a rented building. It was maintained and heated under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

HUNKER CREEK.

MINING INSPECTOR'S OFFICE.

This building was maintained, heated and lighted under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

KLUHANE.

MINING RECORDER'S OFFICE.

This building was constructed, maintained, repaired and heated under the supervision of S. A. D. Bertrand, inspector of public buildings, Yukon Territory, Dawson.

LIVINGSTONE CREEK.

RECORDER'S OFFICE.

This building, which is a rented one, was maintained, heated and lighted under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

SELKIRK.

MINING RECORDER'S OFFICE.

This building was maintained and heated under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

STEWART RIVER.

RECORDER'S OFFICE.

This building was maintained and heated under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

SULPHUR CREEK.

MINING INSPECTOR'S OFFICE.

This building was maintained, heated and lighted under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

WHITEHORSE.

POST OFFICE.

The post office was fitted up with boxes, &c., a desk, stools, file and linoleum were supplied the customs office; a room was fitted up for a mail-room; new latrines were erected and fences were erected around the government property.

Work done under the supervision of S. A. D. Bertrand, of this department, Yukon Territory, Dawson.

RECORDER'S OFFICE.

This building was maintained and repaired under the supervision of S. A. D. Bertrand, superintendent of public buildings, Yukon Territory, Dawson.

DOMINION PUBLIC BUILDINGS, JUNE 30, 1905, EXCLUSIVE OF THE PENITENTIARIES, INDUSTRIAL SCHOOLS, MARINE HOSPITALS AND MOUNTED POLICE BUILDINGS.

PROVINCE OF NOVA SCOTIA.

Amherst, public building.
Annapolis, public building.
Antigonish, public building.
Arichat, post office.
Baddeck, public building.
" armoury.
Dartmouth, post office.
Digby, public building.
Guysborough, public building.
Halifax, custom house (in progress).
" Dominion building.
" drill hall.
" examining warehouse (rented building).
" immigration building.
" quarantine (Lawlor's Island).
Kentville, public building.
Liverpool, post office.
Lunenburg, public building.
Middleton, armoury.
Nappan, experimental farm.
New Glasgow, public building.
North Sydney, public building.
Pictou, custom house.
" post office.
" quarantine station.
Springhill, public building.
Sydney, public building.
" quarantine station.
" Mines, public building (in progress).
Truro, public building.
Windsor, public building.
" drill hall.
Yarmouth, public building.

PROVINCE OF PRINCE EDWARD ISLAND.

Charlottetown, Dominion building.
" quarantine station (south port).
Montague, post office.
Souris, public building (in progress).
Summerside, public building.

PROVINCE OF NEW BRUNSWICK.

Bathurst, public building.
Campbellton, public building (in progress).
Carleton (St. John West), public building.
Dalhousie, post office.
Fredericton, infantry school.
" military stables.
" public building.
" sergeant-major's quarters.
Marysville, post office.
Middle Island, quarantine.
Moncton, public building.
Newcastle, public building.
Richibucto, public building.
St. John, custom house.
" drill hall.
" immigration building.
" quarantine (Partridge Island).
" savings bank.
St. Stephen, public building.
Sussex, public building.
" armoury.
Tracadie, lazaretto.
Woodstock, armouries (in progress).
" public building.

PROVINCE OF QUEBEC.

Acton Vale, post office (in progress).
Aylmer, post office.
Berthierville, post office.
Buckingham, post office.
Coaticook, public building.
Drummondville, public building.
Dundee, custom house.
Fraserville, public building.
Farnham, post office.
Granby, public building.
Grosse Ile, quarantine station.
Hochelaga, post office.
Hull, post office.
Joliette, public building.
Lachine, post office.
Laprairie, post office.
L'Assomption, post office.
Lévis, immigration shed.
" cattle quarantine.
" public building (in progress).
Longueuil, post office (in progress).
Montreal, custom house.
" drill hall.
" examining warehouse.
" inland revenue building.
" post office.

Péribonka, immigration building.
Quebec, artillery workshops.
" cartridge factory.
" citadel.
" custom-house.
" drill hall.
" examining warehouse.
" immigration building.
" iron foundry.
" marine agency.
" observatory.
" post office.
Richmond, public building.
Rimouski, public building.
Roberval, immigration building.
St. Henri, post office.
St. Hyacinthe, drill hall (in progress).
" public building.
" inland revenue building.
St. Jérôme, public building.
St. Johns, public building.
" infantry school.
St. Louis du Mile End, post office (in progress).
St. Régis, custom-house.
Sherbrooke, public building.
Sorel, public building.
Terrebonne, post office (in progress).
Thetford Mines, public building.
Three Rivers, custom-house.
" post office.
" drill hall (in progress).
Valleyfield, post office (in progress).
Victoriaville, public building.

PROVINCE OF ONTARIO.

Alexandria, public building (in progress).
Almonte, public building.
Amherstburg, public building.
Arnprior, public building.
Barrie, public building.
Berlin, public building.
Belleville, public building.
Bowmanville, post office.
Brampton, public building.
Brantford, drill hall.
" public building.
Bridgeburg, post office (in progress).
Brockville, public building.
" drill hall.
Burford, armoury (in progress).
Carleton Place, public building.
Cayuga, post office.
Chatham, drill hall (in progress).
" public building.

Clinton, post office.
Cobourg, armoury and gunshed.
" public building.
Cornwall, public building.
Deseronto, public building.
Dundas, armouries.
" post office (rented building).
Fort William, public building.
Galt, public building.
Gananoque, custom-house.
" post office.
Goderich, public building.
Guelph, public building.
Hamilton, public building.
" drill hall.
" custom-house (old).
Hawkesbury, post office (in progress).
Ingersoll, public building.
Kingston, custom house.
" drill hall.
" military college buildings (Fort Frederick).
" post office.
Lindsay, public building.
London, custom-house.
" drill hall.
" infantry school.
" post office.
Napanee, public building.
Niagara Falls, public building.
Orangeville, post office.
Orillia, public building.
Oshawa, post office (in progress).
Ottawa, central experimental farm.
" drill hall.
" Dominion archives building (in progress).
" eastern departmental block.
" fisheries, museum and art gallery.
" geological museum.
" government house.
" Langevin block.
" laboratory (bacteriological).
" military store building.
" observatory.
" transit house (in progress).
" parliament buildings.
" printing bureau.
" post office, customs and inland revenue.
" royal mint (in progress).
" Supreme and Exchequer courts.
" Victoria Memorial museum (in progress).
" western departmental block.
Paris, public building.
Pembroke, public building.
Petrolia, public building.

Peterborough, custom house.
" post office.
Picton, public building.
Port Arthur, public building.
Port Colborne, public building.
Port Dalhousie, custom house.
Port Hope, public building.
Prescott, custom house.
" Fort Wellington.
" post office.
Rat Portage, public building.
Sandwich, post office (in progress).
Sarnia, public building.
" immigrant building.
Sault Ste. Marie, public building.
Smith's Falls, public building.
St. Catharines, public building.
" drill hall.
St. Thomas, armoury.
" public building.
Stratford, public building.
" armouries (in progress).
Strathroy, public building.
Toronto, custom house.
" drill hall.
" examining warehouse.
" immigration building.
" infantry school and drill shed.
" post office.
" postal station 'A.'
" postal station 'C.'
" Junction, public building.
Trenton, public building.
Walkerton, public building.
Windsor, drill hall.
" public building.
Woodstock, armouries.
" public building.

PROVINCE OF MANITOBA.

Brandon, experimental farm.
" immigration building.
" public building.
Birtle, immigration station.
Dauphin, immigration station.
East Selkirk, immigration shed (old C.P.R. round house).
Fort Osborne, infantry school.
Minnedosa, immigration shed.
Portage la Prairie, public building.
Virden, armoury.
Winnipeg, custom house.
" examining warehouse.
" immigration building (in progress).

Winipeg, immigration hospital.
" immigration hall.
" lands office.
" magazine.
" post office.
" new post office (in progress).

NORTH-WEST TERRITORIES.

Alberta.

Calgary, court house.
" immigrant shed.
" public building.
Edmonton, immigration shed.
" registry office.
" jail (in progress).
Lethbridge, public building.
" immigration building.
Macleod, custom house.
" court house.
Red Deer, court house.
St. Mary's, custom house.
Strathcona, immigration building.

Assiniboia East.

Carnduff, court house.
Indian Head, experimental farm.
Moosomin, court house.
Qu'Appelle, immigrant shed.
Wolseley, court house.
Yorkton, court house.

Assiniboia West.

Medicine Hat, court house.
" immigration shed.
Moosejaw, court house.
" public building (in progress).
Regina, court-house.
" council chamber.
" government house.
" government offices.
" immigration shed.
" land and registrar's office.
" post office.

SASKATCHEWAN.

Battleford, commandant's residence.
" government house.
" immigrant shed.
" magistrate's residence.
" registrar's residence.
" registry office.

Prince Albert, court-house and jail.
" immigrant shed.
" land and registry office.
" public building (in progress).
Saskatoon, immigration building.

YUKON TERRITORY.

Clear creek, mining office.
Dawson, administration building.
" court-house.
" commissioner's residence.
" post office.
" departmental stores.
" telegraph office.
Whitehorse, post office.

BRITISH COLUMBIA.

Agassiz, experimental farm.
Kaslo, armoury.
Kamloops, armoury.
" public building.
Nanaimo, public building.
Nelson, public building.
" armoury.
New Westminster, drill hall.
" public building.
Revelstoke, armoury.
Rossland, public building.
" armoury.
Vancouver, immigrant building.
" drill hall and gun-shed.
" public building.
Victoria, artillery barracks.
" drill hall.
" custom-house (Marine and Indian Affairs offices).
" military store-house.
" post office (old).
" powder magazine.
" public building.
William Head, quarantine station.

PART IV

CHIEF ENGINEER'S REPORT

ON

HARBOUR AND RIVER WORKS

INCLUSIVE OF

GRAVING DOCKS AND DREDGING OPERATIONS

ALSO

ROADS, BRIDGES AND SURVEYS THROUGHOUT THE DOMINION.

REPORT OF THE CHIEF ENGINEER.

DEPARTMENT OF PUBLIC WORKS OF CANADA,
CHIEF ENGINEER'S OFFICE,
OTTAWA, January 10, 1906.

FRED. GÉLINAS, Esq.,
Secretary,
Department of Public Works.

SIR,—I have the honour to submit the annual report on the various works under my charge during the fiscal year ended June 30, 1905.

These works comprise the construction and repair of wharfs, piers, breakwaters, dams, weirs, bank and beach protection works; the improvement of harbours and rivers by dredging; the construction, maintenance and operation of government dredging plant; the construction and maintenance of graving docks; the construction, maintenance and working of slides and booms; the construction and maintenance of interprovincial bridges and approaches thereto, and of bridges on highways of federal importance in the North-west Territories and the maintenance of military roads; also hydrographic and ordinary surveys and examinations, inclusive of precision levelling and geodetic measurements which are required for the preparation of plans, reports and estimates; the testing of cements, &c.

I have the honour to be, sir,
Your obedient servant,

EUG. D. LAFLEUR,
Chief Engineer.

During the fiscal year 1904-05, surveys and examinations were made at the following places.

NOVA SCOTIA.

Annapolis, Annapolis County.
Arichat, Richmond County.
Arisaig Breakwater, Antigonish County.
Avonport, King's County.
Baddeck Inlet, Victoria County.
Bailey's Brook, Pictou County.
Barachois, Victoria County.
Bass River, Colchester County.
Battery Point, Annapolis County.
Baxter Harbour, King's County.
Bay St. Lawrence, Victoria County.
Beckerton, Guysboro County.
Black Point, Victoria County.
Boisdale, Cape Breton County.
Burke's Cove, Victoria County.
Canning, King's County.
Canso, Guysboro County.
Chegoggin, Yarmouth County.
Cheverie, Hants County.
Church Point, Digby County.
Cow Bay, Halifax County.
Crooks's Cove, Guysboro County.
Cunningham's Point, Guysboro County.
Devil Island, Halifax County.
Dixon's Point, Cape Breton County.
Drum Head, Guysboro County.
East Chezzetcook, Halifax County.
East River Bridge, Pictou County.
Economy, Colchester County.
Feltzen South, Lunenburg County.
Freeport, Digby County.
French Village, Halifax County.
Gabarus Harbour, Cape Breton County.
Georgeville, Antigonish County.
Gibbon's Bridge (Wharf), Cape Breton County.
Glace Bay Harbour, Cape Breton County.
Goose Harbour, Yarmouth County.
Hall Harbour, King's County.
Harrigan Cove, Halifax County.
Hansport, Hants County.
Hiltz Narrows, Lunenburg County.
Indian Harbour, Halifax County.
Iona, Victoria County.
Irish Vale Pond, Cape Breton County.
Jeddore, Halifax County.
Jeddore Oyster Pond, Halifax County.
Kelly's Cove, Yarmouth County.
Kingsport, King's County.
Lennox Passage Bridge, Richmond County.
Meteghan, Digby County.
Middle Country Harbour, Guysboro County.
Middle Melford, Guysboro County.
Mill Cove, Lunenburg County.
Mushaboon, Halifax County.
New Haven, Victoria County.
Newport Landing, Hants County.
Noel, Hants County.
North Ingonish, Victoria County.
North Harbour (Aspy Bay), Victoria Co.
North River, Victoria County.
North Sydney (Breakwater), Cape Breton County.
North Sydney (Dredging), Cape Breton County.
North Sydney (Railway Dry Dock), Cape Breton County.
Nyanza, Victoria County.
Parker's Cove, Annapolis County.
Pembroke, Hants County.
Petite Rivière, Lunenburg County.
Phinney Cove, Annapolis County.
Pictou Island, Pictou County.
Piper's Cove, Cape Breton County.
Plympton, Digby County.
Poirierville, Richmond County.
Port au Pique, Colchester County.
Port Dufferin, Halifax County.
Porter's Lake, Halifax County.
Port Felix, Guysboro County.
Port Hawkesbury, Inverness County.
Port Hilford, Guysboro County.
River Bourgeois (Bissett's), Richmond Co.
River Bourgeois (Boyd's), Richmond Co.
Round Hill, Annapolis County.
Samson's Cove, Richmond County.
Sandford, Yarmouth County.
Scott's Bay, King's County.
Sheet Harbour, Halifax County.
Skinner's Cove, Pictou County.
South Bar, Cape Breton County.
South Cove Grant, Victoria County.
South Ingonish, Victoria County.
Spry Bay, Halifax County.
Summerville, Hants County.
Swivel Point, Cape Breton County.
Sydney Harbour, Cape Breton County.
Tangier, Halifax County.
Tatamagouche, Colchester County.
Tennycape, Hants County

Litchfield, Annapolis County.
Little Bras d'Or, Cape Breton County.
Little River, Annapolis County.
Little Brook, Digby County.
Little Judique, Inverness County.
Little Narrows (North), Inverness County.
Lower Plymouth, Yarmouth County.
Lower Ship Harbour, Halifax County.
Mabou Harbour, Inverness County.
Mabou Bridge (Wharf), Inverness County.
Manthorn's Cove, Guysboro County.
Margaree Island, Inverness County.
Margaretville, Annapolis County.
Meat Cove, Victoria County.
Meteghan River, Digby County.
Three Island Cove, Richmond County.
Toney River, Pictou County.
Tracadie (East), Antigonish County.
Upper Washabuck, Victoria County.
Victoria Beach, Annapolis County.
West Pubnico, Yarmouth County.
West Chezzetcook, Halifax County.
Weymouth, Digby County.
Whale Cove, Annapolis County.
Whitney Pier, Cape Breton County.
Wine Harbour, Guysboro County.
Windsor, Hants County.
Wolfville, King's County.
Yarmouth Bar, Yarmouth County.
Yarmouth Harbour, Yarmouth County.

PRINCE EDWARD ISLAND.

Bay Fortune Breakwater, Kings' County.
Belle River, Queen's County.
Belfast Pier, Queen's County.
Beach Point, King's County.
Bay View Pier, Queen's County.
Blooming Point, Queen's County.
Cascumpec, Prince County.
China Point Pier, Queen's County.
Cape Traverse Pier, Prince County.
Canoe Cove Breakwater, Queen's County.
Campbell's Cove Breakwater, King's Co.
Graham's Pond, King's County.
Greek River, King's County.
Grand River, Prince County.
Higgins Shore, Prince County.
Hurd's Point Pier, Prince County.
Lewis Point, King's County.
Mount Stewart, Queen's County.
Mink River Pier, King's County.
Miminigash Breakwater, Queen's County.
McPherson's Cove, King's County.
New London Breakwater, Queen's County.
North Cardigan Pier, King's County.
Port Selkirk Pier, Queen's County.
Panmure Island, King's County.
Queen's Pier (Georgetown), King's County.
Rustico Breakwater, Queen's County.
Red Point Wharf, Queen's County.
St. Peters Lake, King's County.
Savage Harbour, King's County.
St. Peters Harbour, King's County.
South River Pier, Murray Harbour, King's County.
Souris Breakwater, King's County.
Summerside Harbour, Prince County.
Tignish Breakwater, Prince County.
Tracadie Harbour, Queen's County.
Victoria Pier, Crapaud, Queen's County.
Wood Islands Breakwater, Queen's County.
West Point Wharf, Prince County.

NEW BRUNSWICK.

Anderson's Hollow, Albert County.
Ackerley's Wharf, Queen's County.
Blissville, Sunbury County.
Belyea's Wharf, King's County.
Buctouche, Kent County.
Buctouche Beach, Kent County.
Burnt Church, Northumberland County.
Campbellton, Restigouche County.
Chance Harbour, St. John County.
Chatham, Northumberland County.
Colwell's Creek, Queen's County.
Cunning's Cove, Charlotte County.
Dipper Harbour, St. John County.
Dover, Westmoreland County.
Durham, Restigouche County.
Edgett's Landing, Albert County.
Edmundston, Madawaska County.
Port Dufferin, St. John County.
Great Salmon River, St. John County.
Lord's Cove, Charlotte County.
Lower Dover, Westmoreland County.
Maquapit Lake, Queen's County.
Mace's Bay, Charlotte County.
Mill's Point, Northumberland County.
Neguac, Northumberland County.
Negro Point, St. John County.
Newcastle, Northumberland County.
Partridge Island, St. John County.
Point Wolfe, Albert County.
Parrsborough, Cumberland County.
Quaco, St. John County.
Richibucto, Kent County.
Richibucto Cape, Kent County.
River St. John, Sunbury, Victoria and Madawaska Counties.
Shippegan, Gloucester County.
South Rodney Wharf, St. John County.
St. George, Charlotte County.

Hampstead, Queen's County.
Heustis Wharf, Queen's County.
Hillsborough, Albert County.
Hopewell Cape, Albert County.
Hopewell Hill, Albert County.
Leonardville, Charlotte County.
L'Etang, Charlotte County.
Loggieville, Northumberland County.
Lower Lincoln, Sunbury County.
Tracadie, Gloucester County.
Tynemouth Creek, St. John County.
Upper Salmon River, Albert County.
Webster's Wharf, Queen's County.
Welchpool, Charlotte County.
Westfield Beach, King's County.
Wilson's Beach, Charlotte County.
Washademoak, Queen's County.
York Point, St. John County.

QUEBEC.

Agnes, Beauce County.
Anse Eternité, Chicoutimi County.
Ashnapmouchouan River, Chicoutimi Co.
Belœil, Chambly and Verchères County.
Berthier, Berthier County.
Bon-Désir, Saguenay County.
Boucherville, Chambly and Verchères Co.
Bromptonville, Richmond and Wolfe Co.
Cap à l'Est, Chicoutimi County.
Champlain, Champlain County.
Chateauguay, Chateauguay County.
Chute Monte à Peine, Joliette County.
Coteau du Lac, Soulanges County.
Coteau Landing, Soulanges County.
Côte Ste. Catherine, Hochelaga County.
D'Israeli, Richmond and Wolfe County.
Doucet's Landing, Nicolet County.
English River, Chateauguay County.
Fabre, Pontiac County.
Gatineau Point, Wright County.
Georgeville, Stanstead County.
Godfroye River, Nicolet County.
Graham, Vaudreuil County.
Hudson, Vaudreuil County.
Iberville, St. Johns and Iberville County.
Isle Bizard, Jacques-Cartier County.
Isle Perrot, North, Vaudreuil County.
Isle Perrot, South, Vaudreuil County.
Knowlton Landing, Brome County.
Lachine, Jacques-Cartier County.
Lacolle, Missisquoi County.
Lake Labelle, Labelle County.
Lake Megantic, Compton County.
Lake Nomininge, Labelle County.
Lake St. Francis, Beauce County.
Lanoraie, Berthier County.
Laprairie, Laprairie and Napierville Co.
Lavaltrie, L'Assomption County.
Longueuil, Chambly and Verchères County.
Magog, Stanstead County.
Masson, Labelle County.
Nicolet River, Nicolet County.
North Temiscamingue, Pontiac County.
Norte-Dame de Montauban, Portneuf Co.
Peel Head Bay, Missisquoi County.
Pentecôte, Saguenay County.
Petit Saguenay, Saguenay County.
Phillipsburg, Missisquoi County.
Pierreville, Yamaska County.
Point Fortune, Vaudreuil County.
Point Valois, Vaudreuil County.
Point St. Charles, Hochelaga County.
Quinn's Point.
Repentigny, L'Assomption County.
Richmond, Richmond and Wolfe County.
Rigaud, Vaudreuil County.
River La Guerre, Huntingdon County.
River St. Louis, Beauharnois County.
Sabrevois, St. Johns and Iberville County.
Seven Islands, Saguenay County.
St. Firmin or Baie Ste. Catherine, Saguenay County.
St. Gédéon Islands, Chicoutimi County.
Sorel, Richelieu County.
St. Andrews, Argenteuil County.
Ste. Anne de la Pérade, Champlain County.
Ste. Anne de Sorel, Richelieu County.
Ste. Barbe, Huntingdon County.
St. Blaise, St. Johns and Iberville County.
St. François de Sales, Laval County.
Ste. Geneviève, Jacques-Cartier County.
St. Ignace de Loyola, Berthier County.
St. Johns, St. Johns and Iberville County.
St. Marc, Chambly and Verchères County.
St. Matthias, Rouville County.
St. Paul de l'Ile aux Noix, St. Johns and Iberville County.
St. Pierre les Becquets, Nicolet County.
St. Stanislas, Beauharnois County.
St. Sulpice, L'Assomption County.
St. Zotique, Soulanges County.
Terrebonne, Terrebonne County.
Three Lakes, Beauce County.
Valleyfield, Beauharnois County.
Verchères, Chambly and Verchères County.
Ville Marie, Pontiac County.
Verdun, Jacques-Cartier County.
Weedon, Richmond and Wolfe County.

ONTARIO.

Malden,
Colchester,
Whitby,
Rose Point,
Matchedash Bay,
Niagara River,

Thunder Bay,
Trent River,
Jones Creek,
Atherley,
Wikwemikong,
Holland River,
Mud Lake,
Toronto, Sudbury C.P.R. Line,
Chemong Park,
Little Sandy Bay,
Colborne,
Thames River,
Dean Lake,
Janack's Narrows,
Barry's Bay,
South River,
Peterborough,
Silverwater,
Bensford Bridge,
Bridgeworth,
Crow's Landing,
Rossport,
Rainy River,
Severn River,
Fort Frances,
Echo Bay,
Dunnet's Landing,
Scugog River,
Dayton,
Spanish River,
Rama,
Dyer's Bay,
Jackson's Point,
Callander,
Prescott,
Chute à Blondeau,
Cornwall,
L'Orignal,
Morrisburg,
Treadwell,
Wendover,
Port Stanley,
Mud Lake,
Stratford,
Belle River,
Dawson Point,
Besserer's Grove,
Pelee Island,
St. Mary's,
Haileybury,
Colchester,
Port Burwell,
Chenal Ecarte River,
Mitchell's Bay,
Johnston's Bend (Chenal Ecarte River),
Kincardine,
Amherstburg,
St. Joseph,
Goderich,
Bayfield,
Tamagami Station,
Rondeau,
Port Bruce,
Grand River Bridge.

PROVINCE OF NOVA SCOTIA.

ADVOCATE HARBOUR.

Advocate is an important town, situated on Greville bay, thirty miles south-west of Parrsborough, having a population of 1,000. The chief industries are farming, lumbering, mining and fishing.

In 1899, the department constructed a wharf at this place at a total cost of $2,765.41. This wharf was then 360 feet long, 20 feet wide on top, except the last 40 feet which was 30 feet wide, and from 12 feet to 16 feet high. It was constructed of pile-heads 10 feet, thoroughly braced, waled and fastened. It was close-piled for its entire length on the outside and end faces. This close-piling, as in many other places, proved unsuitable to prevent the undertow from affecting vessels moored at the inside of the wharf, so in 1901, a sum of $431.82 was expended in sheathing these two faces of the work.

During the last fiscal year the sum of $1,724.22 was expended in widening this work. The entire wharf, with the exception of the shoreward block which has been there for many years, was widened 10 feet by means of additional pile-trestle bents, 10 feet in width, and the whole connected with the other by means of long caps, stringers, and brace piles.

The business at this place, such as loading piling for foreign market, &c., has increased a great deal since this wharf has been constructed, and its usefulness is certainly apparent.

Spring tides rise here 40 feet and neap 34 feet, but the wharf is bare at about half tide, which does not affect its usefulness.

APPLE RIVER.

Apple river, Cumberland county, is a village on the river of the same name, 25 miles from Joggins, the nearest railway station. It contains two churches, three stores, one hotel, two saw-mills and a telephone office. Population, 700.

During the last fiscal year, plans and specifications were prepared for a breakwater, but at the end of the year work had not yet been commenced.

Expenditure, $19.81.

AMHERST POINT.

Amherst Point, is a post settlement in Cumberland county, at the head of the Bay of Fundy, four miles from Amherst. Population about 200.

A sum of $3,000 was voted for the construction of a wharf at this place, plans and specifications were prepared but up to June 30, 1905, no action had been taken.

BADDECK.

Baddeck, the shiretown of Victoria county, is on the northern shore of the Little Bras d'Or lake, near the entrance to St. Patrick's channel.

On June 5, 1903, a report was submitted on the construction of a public wharf on three different sites, and estimates were given of the cost of a wharf on each site, including the cost of property required in connection with each.

An appropriation of $5,000 was made by parliament for expenditure during 1904-05, but so far, no action has been taken towards construction of said wharf.

BAILEY'S BROOK.

Bailey's Brook, Lismore, Pictou Co., is a large stream emptying into the Strait of Northumberland, at a point about ten miles to the eastward of the entrance to Merigomish harbour, and six miles to the westward of Arisaig.

The sum of $2,000 was voted for expenditure during 1902-03 towards the opening of a permanent channel through the beach at the mouth of the brook, to permit boats to enter it for shelter, and for the construction of channel protection works on the outside.

The works proposed to effect these improvements included cutting a channel through the beach, about 290 feet in length and 30 feet wide in the bottom, with a depth of 2 feet at low water spring tides, or 6½ feet at high water; the construction of a shear dam on the western side of the channel, 130 feet in length and 12 feet wide, founded at low water, and protected with sheet piling on the channel face and outer end; and the construction of a breakwater on the eastern side of the channel, 240 feet in length and 20 feet wide on top, constructed of round timber crib-work and extending out into 3 feet at low water, to prevent the sand from closing in, and to serve at the same time as a boat landing.

The amount voted for expenditure during 1903-04, was expended in procuring most of the timber required for the construction of the protection works.

In 1903-04, out of the amount voted for expenditure, viz.: $3,000, the sum of $2,742.48 was expended in the construction of the breakwater on the eastern side of the entrance, and in the excavation of the channel above referred to, leaving the construction of the dam still to be done, to complete the proposed improvement.

During the fiscal year 1904-05, the sum of $1,471.46 was expended in constructing the shear dam; in constructing brush and stone work on the eastern side and at

inner end of the breakwater; of brush and stonework, 7 feet in width and 5 feet in height, in extension of the breakwater inwards, 64 feet, and deepening the channel.

Total expenditure to June 30, 1905, $6,213.87.

BARACHOIS.

Barachois, Victoria Co., is at the mouth of the Barachois river, about three miles to the northward of St. Ann's harbour, and is a snug little boat harbour, formed by an outlying beach, and connected at its southern end with St. Ann's bay, by a shifting channel through the beach.

The sum of $1,500 was voted for expenditure during 1904-05 towards the formation of a boat harbour, but as there was not any information in the office about the locality and its requirements, a survey was made on December 2, 1904 to ascertain the nature and extent of the work required.

The work asked for is for preventing the channel through the beach from shifting, and as this shifting is caused by the action of the sand along the shore during northerly gales, it can be prevented by the construction of a breakwater on the northern side of the entrance.

The proposed breakwater is 200 feet in length and 15 feet wide on top, with sides sloping 1 in 8, to be constructed of round timber, laid open-faced, fully ballasted and protected on all faces with close-sheathing, driven 2 feet into the ground.

The necessary materials were procured during winter and the work of construction was commenced early in June. At the end of the fiscal year, out of the amount voted, the sum of $1,499.80 had been expended in constructing the bottom of the cribwork, up to within 2 feet of the top, but only half filled with ballast.

BARRINGTON PASSAGE.

Barrington Passage is a channel ranging from two hundred feet to half a mile in width, running between Cape Sable island and the mainland; it is used very extensively by the schooners and steamers which are quite plentiful in this part of Nova Scotia. At L.W.O.S.T. there was only nine feet of water to be depended upon in certain portions of the channel, whilst the rest of the channel carried from 14 to 25 feet of water. It was desirable that there should be at least fourteen feet all through this important channel and during the last fiscal year there was expended the sum of $2,483.62 in deepening the shallow portions.

Some of the large boulders lying in close formation, which hitherto have been considered component parts of a solid ledge or ledges were after examination proved to be separate and distinct boulders. Some were large enough to require blasting, whilst the majority of them were removed by means of slings and steam-winch. The channel was deepened to about 11 feet, except in one place, where it is intended to work next year.

The work performed amounted to the raising and unloading of 475 tons of stone, at an average cost per ton of $4.22. As there is an extremely strong tide running through this narrow channel, the work could only be performed at certain times of tide. The estimate of this work was about $5,000 and next year will no doubt see this work almost satisfactorily completed.

Spring tides rise 9 feet, neaps 7 feet.

BASS RIVER.

Bass river, Colchester county, is a farming and manufacturing village of about 500 people, situated on the north side of Cobequid bay, the eastern arm of the Bay of Fundy. It is half way between Truro and Parrsboro', or about twenty-eight miles from each place. In 1894-95, the department built, by contract, at a cost of $3,240, a

public wharf of pile-work, 210 feet long, 40 feet wide, with an ell at the outer end 55 feet long and 40 feet wide. At the outer end of the ell it was found necessary to build a small block of cribwork, containing 8,000 cubic feet, on account of the hard nature of the bottom preventing the piles from being driven to a proper depth. Along its outer face the work is 26 feet high, giving a depth of 22 feet at H.W.O.S.T.

In the fiscal year 1901-02, the department expended the sum of $1,099.11 in extending the pile wharf built in 1894-95. The extension is 40 feet square, substantially built of pile-work and giving the wharf the form of a T. A small freight shed was also built on the wharf for the accommodation of local shippers and merchants.

In 1902-03, the sum of $56.06 was expended in enlarging the freight shed on the wharf.

In 1904-05, the sum of $1,200.03 was expended for renewing the whole top of the wharf, including plank, stringers and guard-timbers, in addition to a number of new fender piles which were very much decayed.

BATTERY POINT.

Battery Point, Annapolis county, is a fishing settlement of about 150 people, situated on the east side of Digby Gut, about four miles north-east from the town of Digby, and fifteen miles south-west from the town of Annapolis. In 1904-05, the sum of $2,062.21 was expended in constructing a breakwater for the protection of the fishing fleet, comprising from forty to fifty boats. The work is 90 feet long, 26 feet wide, 8 feet high at the shore end and 19 feet high at the outer end. The approach is a stone embankment 38 feet long, 26 feet wide and from 4 to 8 feet high.

At the end of the fiscal year the work was completed with the exception of a few fenders.

Spring tides rise 26 feet, neaps 22 feet.

BAYFIELD.

Bayfield, Antigonish county, is on the south coast of St. George's bay, eight miles east from Antigonish harbour, and fifteen miles west from the entrance to the Strait of Canso, the harbour being formed by Pomquet island and outlaying reefs.

A breakwater 400 feet in length was constructed at Pomquet Point in 1879, and extended a further length of 310 feet in 1888. The work consisted of a cribwork core 18 feet in average width, covered with stone sloping on the seaward side, three to one, and on the inner side one and one-half to one. It continued undisturbed until the occurrence of the great gale of December 1, 1890, when the stone covering was stripped off nearly to high-water level, to within 160 feet of the inner end.

During the years 1892-93, and 1895-96, the breakwater was repaired and extended. The work done included an extension 70 feet in length, with an 'L,' or return, at the outer end 40 feet in length.

In the year 1897-98 the sum of $999.73 was expended in reconstructing the stone covering of the breakwater in places where it had been disturbed. About 4,000 superficial feet of the top was reconstructed with 363 cubic yards of large stone, 163 cubic yards of which was old stone displaced and 200 cubic yards of new stone brought one mile to the public wharf, thence by scow a quarter of a mile to the breakwater.

With the exception of some disturbance of the stone covering and of the displacement of some of the stones forming the covering at the outer end, the breakwater remained in fairly good condition until December 5, 1902, when it sustained serious damage during a northerly gale, accompanied by an exceptionally high tide. The covering stones were carried away for a length of 458 feet (184 to 642 feet from the inner end) down to the top of the cribwork, or to within about 1½ feet of extreme high water, and deposited over the inner slope; and the covering stones from 726 feet from the inner end outwards, were more or less disturbed. The repairs proposed in-

cluded the construction of a concrete wall 525 feet in length over the inner face of the cribwork (150 to 675 feet from the inner end) and the replacing of the stone covering.

In 1903-04, the sum of $6,789.83 was expended in procuring and storing 800 barrels of cement and some other materials, and in the construction of 30 lineal feet of concrete wall.

During the fiscal year 1904-05, the sum of $4,147.06 was expended in completing the concrete wall, in reconstructing the covering on the south or inner side of the wall, and on its north or seaward side over a distance of 325 feet from its outer end, and in grouting between the covering stones on each side over a distance of 160 feet from the outer end of the wall inwards.

The cost of completing the repairs undertaken is estimated at $1,600, which amount has been appropriated for expenditure in 1905-06.

BAY ST. LAWRENCE.

Bay St. Lawrence, Victoria county, is on the northern extremity of Cape Breton island, between Cape North and Black Point.

At the head of the bay and separated from it by a beach of sand, gravel and stone, is a small lake or pond about three-quarters of a mile in length and half a mile in width, with a considerable depth of water.

In 1887, a channel to low water, was opened by the department through the beach into the pond, but as it was not protected from the sea, it soon filled in again.

During 1888-89, the channel, which had been alternately opened by freshets and closed during northerly gales, was reopened and protected on its western side by a cribwork block, 53 feet in length beyond high water mark, and by a work of brush and stone 30 feet in length from high water mark inwards. The channel remained open for a short time after the completion of the protection works, but it was closed again at the inner end of the protection works by sand, during a north-westerly gale. The cribwork block still remains, but the brush and stonework, after having been damaged, was washed out by the sea.

The total expenditure on this work up to June 30, 1889, was $3,992.17.

The sum of $5,500 was voted for expenditure during 1904-05 towards the formation of a boat harbour, and instructions to prepare plans and specification for the works required, were received on August 19, 1904, but as there was not any information in the office as to the nature and extent of the works necessary to accomplish the object, the plan could not be prepared until the locality had been visited, and a complete survey of the site made. On June 20 a report was submitted to the department, and the probable cost of the works required to make a permanent channel through the beach, from the bay into the pond, with 6 feet at low water springs, was estimated at $19,400.

BECKERTON.

Beckerton, or Port Beckerton, is a harbour on the southern or Atlantic coast of Nova Scotia, about midway between Indian and Country harbours, and about five and one-half miles distant from the entrance of each.

During the fiscal year 1904-05, the sum of $2,192.03 was expended in procuring materials required in the construction of a block and span wharf to extend to 12 feet at extreme low or to 18 feet at extreme high water, and in constructing the inner block 40 feet in length by 20 feet in width, and the substructures of the second and third blocks each 18 by 20 feet.

The wharf is to be 190 feet in length, including the inner block, 40 by 20 feet, four intermediate blocks each 18 by 20 feet and an outer block or head 24 feet in line of work by 50 feet.

BIG HARBOUR.

Big Harbour, or Port Bevis, is on the northern side of the Great Bras d'Or channel, about fifteen miles to the westward of its entrance into the Atlantic.

On April 26, 1904, a contract was entered into, in the sum of $3,875 for the construction of a wharf near the ferry landing, on the eastern side of the entrance to Big Harbour. The work was commenced on October 10, 1904, and was brought to a satisfactory completion on November 23.

It is a block and span wharf, with creosoted timber substructure, extending to 13 feet at low water, having 81 feet in length and 20 feet in width with an 'L' on the eastern side of the outer end, 20 by 20 feet, and connected with the public road by an approach 113 feet in length. The wharf consists of a shore abutment 11 feet long; an inner block 20 feet long, and an outer block 20 by 40 feet, with openings between them 15 feet long. The blocks are constructed of round timber, properly ballasted and protected by fenders, and with close-sheathing around the outer block.

The expenditure during the last fiscal year amounted to $3,989.38.

BIG POND.

Big Pond, Cape Breton county, is on the south side of East Bay, the eastern arm of the Great Bras d'Or lake, about thirteen miles from the head of the bay, and twenty-five miles south-eastward from the City of Sydney.

On January 4, 1904, a contract was entered into, in the sum of $7,720, for the construction of a wharf, with approach thereto from the public road. The work was commenced on June 30, and completed in a satisfactory manner on October 8, 1904.

It consists of a block and span structure, extending to 11 feet at low water, and a road, 223 feet in length. The wharf is 254 feet in length and 20 feet in width, with an 'L' on the north-eastern side of the outer end, 28 feet long and 24 feet wide; and is made up of a shore abutment 50 feet long, of four blocks 20 feet long, and of an outer block 24 feet by 48 feet, with openings between them, 18 feet in length. The abutment and the blocks are constructed of round timber, with creosoted timber substructure, fully ballasted and fendered, and the faces of the two outer blocks are protected with close-sheathing.

Expenditure during last fiscal year, $7,900.

BLACK POINT.

Black Point is situate about seventeen miles south-west of Shelburne and fifteen miles east of Barrington. It has a population of about 500, whose chief pursuits are fishing and farming. Its inhabitants had no adequate facilities for landing freight and in the past have been compelled to boat their supplies for a distance of from five to ten miles.

In the fiscal year 1900-01, this department constructed a wharf at this place at a cost of $1,826.40. It consists of an approach, constructed in the form of a rock-bank, 47 feet long, 24 feet wide on top and 8 feet high at the outer end; two blocks of stone-filled, log cribwork, each 20 feet long, separated by a span 13 feet long in the clear: and 120 feet in length of pile trestle work. The main wharf is 22 feet in width, with the exception of the outer 20 feet which is 42 feet in width over all and has a depth of about 11 feet at its outer end, at L.W.O.S.T. The pile work consists of pile trestle-bents, separate 10 feet centre to centre of piles, and thoroughly braced, waled and fendered.

During the last fiscal year the sum of $108.36 was expended in constructing a small freight shed upon this wharf. The shed is 18 feet long by 14 feet wide, and is a convenient and fairly well built structure. Spring tides rise here 7 feet, neaps, 6 feet.

BOULARDERIE CENTRE.

Boularderie Centre, Victoria county, is on the southern side of the Great Bras d'Or channel, about eight miles to the westward of the entrance into the Atlantic Ocean and ten miles to the eastward of its entrance into the Little Bras d'Or lake.

On April 25, 1901, a contract was entered into for the construction of a wharf, which was completed on June 30, 1902.

The wharf is 164 feet long and 20 feet wide, with an 'L' at the outer end, 20 feet by 20 feet and consists of an approach of stone, clay and gravel, 10 feet long; of a cribwork abutment, 30 feet long; of two cribwork blocks 20 feet by 20 feet, and of an outer block 24 feet by 40 feet, with 20 feet openings between the blocks, spanned and covered over. The abutment and the blocks, constructed of round timber, are creosoted up to the level of high water, fully ballasted and fendered, and the two outer blocks are protected by close-sheathing.

The depth along the channel face of the wharf, at low water, is 13 feet. Spring tides rise 2 feet.

During the year 1902-03, the sum of $180.13 was expended in opening a road, 2,100 feet in length, from the wharf to the public road, and during 1903-04, the road was completed, at a cost of $669.98.

The sum of $350 was voted for expenditure during 1904-05, for fencing in the road from the wharf to the public road; out of the amount voted, the sum of $349.87 was expended during the fiscal year in constructing a post and wire fence on each side of the road, and in improving the road itself.

Total expenditure to June 30, 1905, is $6,110.43.

BROAD COVE MARSH.

Broad Cove Marsh, Inverness county, is on the Gulf of St. Lawrence, twelve miles south from Margaree harbour.

The wharf at this place, on its completion in 1888, extended 400 feet to 12 feet 10 inches at extreme low water. It was badly damaged in January, 1894, and was subsequently carried away down to below low water to within 207 feet of the inner end. In 1894-95-96, the inner 207 feet was repaired and strengthened, and in 1897-98 a small amount was expended in repairs.

When repairs were undertaken in 1904-05, only 105 feet remained. During the year the sum of $999.85 was expended in extending what remained of the wharf 25 feet to 2 feet at extreme low water. The work was originally of squared timber, close-faced and had a width of 25 feet on top. The work reconstructed in 1904-05, is of round timber open-faced and close fendered on the northern side.

BRETON COVE.

Breton Cove, Victoria county, is situated on the north-eastern shore of the Island of Cape Breton, about midway between St. Ann's harbour and Ingonish bay.

On July 18, 1904, a contract was entered into, in the sum of $5,885, for the construction of a wharf, to serve the purposes of a boat landing and to afford shelter for fishing boats.

The work under contract is a continuous cribwork structure with creosoted timber substructure, extending to 4 feet at low water, 194 feet long and 16 feet wide, with an 'L' on the western side of the outer end, 24 feet by 20 feet and an inclined landing, built on creosoted timber piles, 4 feet wide and 46 feet long, on the inner face, inside of the 'L.'

Work was commenced on May 15, 1905, and carried on in a very satisfactory manner. At the end of the fiscal year the work under contract was nearing completion.

P.S.—The work was finally completed and accepted on July 22, 1905.

Expenditure during last fiscal year, $6,003.04.

CANNING.

Canning, King's county, is a prosperous village of about 1,500 people, mostly engaged in farming and fruit raising, situated on the north or left bank of the Habitant river, which, about two and a half miles below, debouches into the Basin of Minas. It is an important station on the Kingsport branch of the Dominion Atlantic Railway, which connects with the main line at Kentville, eleven miles to the south

In 1904-05, the sum of $891.27, was expended in the purchase of timber for the construction of a cribwork wharf.

CARIBOU ISLAND.

Caribou island, Pictou county, is on the Northumberland Strait, five miles to the westward of the entrance to Pictou harbour.

Caribou harbour, sheltered by Caribou island and a smaller island to the seaward of it, is eight miles in length and one mile in average width. The principal entrance, between the two islands, has a depth of only 4 feet at extreme low water, and the flats between the mainland and the western extremity of Caribou island, are dry at extreme low water, except in a few small channels. Spring tides rise 6 feet, neaps 4 feet.

A causeway of brush and stone, 1,330 feet in length and 18 feet in width, between the mainland and the western extremity of the island, commenced in 1890-91, was after the completion of work undertaken in 1894-95, built up to the level of ordinary high water over 560 feet of its length, and about 1½ feet below that level over the remaining 770 feet. In 1897 a breach was made through the work near its western extremity, where the bottom was scoured to a depth of about 4 feet at low water, and the top of the low portion, 560 feet to 1,300 feet from the west end, was disturbed in some places. In 1900-01 and 1901-02 the breaches in the brush and stonework were filled in and the work raised to about the level of ordinary high water.

In 1902-03 the sum of $650.06 was expended in continuing the raising of the brush and stonework, which was brought up to an average of about 1½ feet above extreme high water.

In 1903-04 the sum of $1,552.07 was expended in raising the brush and stonework where settlement had taken place, and in placing quarried stone on the seaward side.

During the fiscal year 1904-05 the sum of $1,224.44 was expended in continuing the placing of quarried stone on the seaward side, in levelling up the roadway and placing stone on the inner side.

The total expenditure to June 30, 1905, $6,678.98.

CHEGGOGIN.

Cheggogin, Yarmouth county, is a small fishing and farming village, with a population of 200 people, situated on the Bay of Fundy coast, about five miles north of Yarmouth. The little bay of the same name is one-third of a mile deep, north and south and about the same, east and west, fully exposed to the south-west, but sheltered from every other quarter. It is dry at low tide but at high water has a depth of from 12 to 14 feet.

Over half a century ago a breakwater was built by the proprietors of the marsh, in a position immediately west of the present work. It was totally destroyed about twenty years ago, not a vestige of it being now visible.

In the winter of 1895-96, the inhabitants, aided by a grant of $45 from the municipal council, built a small breakwater 80 feet long, 12½ feet wide and from 6 to 11 feet high, on the south side of the stream's outlet. In 1899-1900, the sum of $598.12 was expended by the department in lengthening the breakwater by the addition of a new block, 60 feet long, 15 feet wide and from 10 to 13 feet high. It is cheaply but substantially built of round-log cribwork of the usual type.

In 1900-01, the breakwater was further extended a length of 51 feet at a cost of $692.21. The new block was 11 feet wide on top with side batters of 1 in 12, and from 12 to 13 feet high. In addition to the extension, a piece of the shoreward end of the work was rebuilt, 30 feet long, 8 feet wide and from 7 to 9 feet high, at a cost of $88.03.

In 1902-03, the sum of $76.58 was expended in raising the shore end of the breakwater a height of from 2 to 3 feet for the purpose of preventing the gravel and sand from washing over and filling up the mouth of the stream, where the fishermen keep their boats.

In 1903-04, the sum of $188.67 was expended in the purchase and delivery of timber for the extension of the breakwater.

In 1904-05, the sum of $1,498.58 was expended in extending the breakwater, by a new block 90 feet long, 15 feet wide and from 13 to 16 feet high, substantially built of round log cribwork of the usual type.

The total expenditure to June 30, 1905 is $3,142.19.

Spring tides rise 16 feet, neaps 13 feet.

CHEVERIE.

Cheverie, Hants county, with a population of about 350, is situated on the right or east bank of the estuary of the River Avon, where it debouches into the Basin of Minas, some fifteen miles north of Windsor, the county town. It is a good farming district, but the principal trade of the place is the quarrying and shipment of gypsum to the United States. The quantity, which varies according to the price ruling in the American market, ranges from 20,000 to 60,000 tons per annum. A wharf, about 100 feet long, was built here many years ago by the provincial government. In 1873-74, the Department of Public Works lengthened it 70 feet at a cost of $2,338.88, the extension being of open round-log cribwork like the old work. In 1882, a further extension of 182 feet was built at a cost of $5,000. This piece of work is of square timber, close faced, 25 feet high and 25 feet wide on top, the same width as the former, and the sides batter 1 in 12. In 1885, the sum of $600 was expended in effecting some much needed repairs to the shoreward side of the wharf. In 1884, the department built a detached breakwater 300 feet distant from the outer end of the wharf, for the purpose of protecting the latter from the northerly seas to which it was exposed. This piece of work consists of solid cribwork 130 feet long, 20 feet wide on top, 35 feet wide at base and about 23 feet high, built of square timber and close-faced on all sides. The seaward side, to the height of 10 feet below high water of spring tides, has a slope of 1 to 1, the sloping faces being covered with 6-inch plank. The block is provided with mooring posts to assist vessels coming to berth at the wharf, as well as with ring bolts and ladders.

In 1887-88, the sum of $500, and in 1896-97, the sum of $100, was expended on extensive repairs. On the outer 100 feet in length, the flooring, guards and some of the fenders were renewed ; on the next 80 feet the guards and three fenders were renewed ; on the next 105 feet the work received new ties, stringers, guards, flooring and fenders; on the next 60 feet shorewards most of the flooring was renewed, 205 feet in length of the wharf, included in the above lengths, was raised in height from 1 foot to 3 feet. In all, sixty-nine new fenders were placed and 250 tons of new ballast was put in.

In the fiscal year ending June 30, 1902, the sum of $768.23 was expended in the purchase of timber for the extension of the detached breakwater built in 1884, as described above.

In 1902-03, the sum of $2,999.34, was expended in the construction of an extension to the detached breakwater. The new block is 100 feet long, 23 feet wide on top, 22 feet high, battering on the landward side 1 in 4 and plumb on the seaward face, with a break 5 feet high. It is substantially built of stone-filled cribwork and close-sheathed on the seaward side.

In 1903-04, the sum of $1,487.29, was expended in completing the work.

In 1904-05, the sum of $800.02, was expended in renewing the top of the middle third in length of the wharf, 80 feet long, 11 feet deep and 30 feet wide. The appropriation did not quite suffice to complete the work.

Spring tides rise 40 feet, neaps 36 feet.

CHETICAMP POINT.

Cheticamp Point, Inverness county, is the southern extremity of Cheticamp island, about one mile to the westward of a beach of shingle closing the south end of Cheticamp harbour, which lies between the island and the mainland, and which is entered from the north.

A contract was entered into on July 16, 1903, for the construction of a breakwater, extending to 5 feet at extreme low water, for the sum of $13,880.

The work was commenced in May, 1904, and completed on September 23 of the same year.

The breakwater is 370 feet long and 20 feet wide, and consists of 20 feet of stone embankment, 80 feet of stone abutment and 270 feet of round timber cribwork, with creosoted timber substructure, fully ballasted, fendered, and close-sheathed on the seaward face for a distance of 96 feet from the outer end, on the outer end, and on the inner face for a distance of 48 feet from the outer end.

Expenditure during last fiscal year, $13,093.96.

CHURCH POINT.

Church Point, Digby county, is situated on the south-east side of St. Mary's bay, six miles south-west from Weymouth. It has a population of 200 people, engaged in fishing and farming.

The work, which consists of a wharf, a retaining wall and breakwater, appears to have been built between the years 1855 and 1856, at the joint expense of the provincial government and the inhabitants. The expenditure of the government having been $61,055.66.

In 1875-76, the department expended the sum of $2,000, the inhabitants contributing an equal amount, in repairing the northern face and in building an ell, 72 feet, long by 20 feet wide, at right angles to it, with the object of preventing gravel from working around the outer end.

The movement of gravel, which is from south to north, has been always more or less a difficulty and detriment to this port. In 1890-91, the gravel having worked around the outer end of the breakwater and formed a bar across the entrance to the loading berth, a small groyne, 40 feet long and 24 feet wide was built, projecting at right angles from the outer or north-west corner of the breakwater. The groyne was extended in 1894-95, a further distance of 30 feet and in 1896-97, by a length of 120 feet and width of 16 to 25 feet, by a height of 10 to 20 feet, all of round-log cribwork. The sluice gates, at the head of the dock, where the fresh water stream makes its exit, were rebuilt in order to cause the stream to scour away the gravel from alongside the wharf front.

In 1900-01, the sum of $800 was expended in rebuilding 63 feet in length of the wharf front, 16 feet high and from 10 to 20 feet wide, 36 feet of this length being close-piled.

The sluice-way was entirely rebuilt and fitted with double lifting gates instead of single; the floor of the sluice was lowered 5 feet and an apron, extending 13 feet up stream and 50 feet down stream, was constructed of 3-inch plank, well spiked to heavy stringers, bedded in close-packed stone and close-piled at both ends to prevent scour.

In 1902-03, the sum of $1,800 was expended in rebuilding 134 feet in length of the wharf wall. The new piece is 15 feet wide at bottom, 18 feet wide at top and 20 feet high, solidly built of stone-filled cribwork.

In 1903-04, the sum of $2,995.21 was expended in the further reconstruction of the wharf wall, begun in 1902-03. The length of the work built being 158 feet, its height from 19 to 21 feet and its width from 8 to 13 feet.

In 1904-05, the sum of $2,100 was expended in taking down and rebuilding a piece of wharf wall 100 feet long, 19 to 22 feet high and from 10 to 18 feet wide, in the continuation and completion of the work done the past two seasons.

The total expenditure to June 30, 1905, is $17,453.02, including a refund of $1,692 to the provincial government in 1887-88.

This work was transferred to the control of the Marine and Fisheries in June, 1888.

Spring tides rise about 22 feet.

CLAM HARBOUR.

Clam Harbour, Halifax county, is a small shallow harbour on the south coast of Halifax county, about fifty miles east of Halifax harbour. The population of the place is about 400, scattered around the shores of the harbour and depending almost wholly upon the fisheries. About sixty boats are employed. The main entrance to the harbour is much exposed to south and south westerly winds. The mouth of the harbour being shallow, heavy seas in rough weather break at the entrance, making it impossible for boats to enter at low water and dangerous even at high water. To overcome this difficulty, the inhabitants some years ago cut a small channel through the marsh, to the eastward of Stoddart island, between the main harbour and Little Harbour, which is sheltered and safe to enter. This little channel was about 5 feet wide, 3 feet deep and 1,200 feet long.

In 1904-05, the department expended the sum of $287.10 in deepening and enlarging this channel which is now 10 feet wide and 5 feet deep. It is through marsh or mud flats and wholly above L.W.O.S.T.

CLARK'S HARBOUR.

Clark's Harbour is a town of about 1,700 inhabitants, situate on the south-west side of Cape Sable island, and is considered the second in importance of all Nova Scotia fishing towns. The channel in this harbour is dotted here and there with numerous small and large boulders, and in order to make a safe anchorage as well as safe channel, a competent diver was employed to make the necessary examination, so as to see what could be done to remedy this serious detriment to navigation.

The sum of $2,993.40, was expended in partially performing the work required which was estimated, upon the report of a diver, to cost about $7,000.

The same plant as that employed at Barrington was employed here and though hampered, neither by strong and adverse tides nor by heavy seas, yet the cost per ton for raising and removing the rocks here was higher than in the former place ; the reasons being that the boulders and stones were much smaller, and those which had to be blasted were so shattered that it took much longer to collect the different fragments and swing them on board the vessels. The number of tons raised here was 575, making the average cost about $5.22 per ton, or just $1 more than at Barrington Passage. Spring tides rise 10 feet, neaps 7 feet.

COUNTRY HARBOUR.

Country Harbour, Guysborough county, is on the Atlantic coast of Nova Scotia, immediately west of Isaac Harbour. It has, four miles inland, an excellent land-locked anchorage in 4½ to 7 fathoms depth, and is navigable for large vessels 6½, and for small

vessels to Narrows Point, 8½ miles inland. Boats can ascend the river to the head of tide, two miles above Narrows Point.

Of the amount appropriated for expenditure in 1904-05, a small amount, $140.66 was expended in June, in procuring materials and plant and in making preparations for carrying on the work of removing obstructions.

COW BAY.

Cow Bay, Halifax county, is situated on the east side of the mouth of Halifax harbour, on the Atlantic coast, about two miles east of Devil Island. It is a broad bay formed by a narrow strip of beach, about a mile in length, separating the Atlantic from a fresh water lake having an area of about 1¼ square miles. The outlet of the lake, which is a small brook flowing through the beach, is used by the fisherman of the locality for the purpose of taking their boats into the lake for shelter in stormy weather. The action of the sea has, however, many times caused the outlet to fill up with gravel, flooding the shore of the lake and making access thereto impracticable. A heavy freshet in the early spring of 1902, swept the gravel out of the inlet and enlarged it to greater dimensions than it hitherto had. To maintain the usefulness of this outlet, the department during the fiscal year 1903-04, expended the sum of $2,063.94 in the purchase and delivery of timber for the purpose of constructing a substantial breakwater.

In 1904-05, the sum of $2,000, was expended in constructing a breakwater for which timber was delivered in 1903-04. The work, which is substantially built of stone-filled cribwork, is 200 feet long; the shoreward half length being 10 feet wide and from 6 feet to 8 feet high, the outer half 16 feet wide and from 9 feet to 10 feet high. At the end of the fiscal year the work still lacked fenders and covering.

COW BAY (PORT MORIEN).

Cow Bay (Port Morien), Cape Breton county, is on the eastern coast of Cape Breton island, about 18 miles to the eastward of the entrance to Sydney harbour.

A breakwater built by the owners of the Gowrie Coal Mine on the north side of the bay, came under the charge of the department in 1873. It originally extended 1,374 feet to 17 feet at low water, or to 23 feet at high water, and was about 44 feet in width. The area of the basin inclosed between it and the shipping pier of the Gowrie mines, now the property of the Dominion Coal Company, was seventeen acres, ten acres of which had a depth of from 9 to 17 feet at low water.

The breakwater was seriously damaged during the great gale of August 24, 1873. Extensive repairs and improvements were made nearly every year up to 1895 when the breakwater consisted of 220 feet of old work protected on the seaward side by a beach of shingle and boulders, 360 feet of old work 44 feet in width, with a new inner face-work and a breakwater on the seaward side built over the remains of the old work, and 793 feet of inner work with counterforts and connecting outer face works. The inner and outer face works were from 30 to 20 feet apart; they were connected by tie-walls and the spaces were filled with earth and stone ballast.

In 1895 and 1896, 260 feet of breakwater (1,114 feet from the shore end outward) was carried away down to from 2 to 6½ feet below low water; the outer face work from 1,114 feet from the shore end inward, was badly damaged, and ballast was washed over the works and deposited in the dock along the inner face, from 581 feet to 1,114 feet from the shore end.

Between the years 1897 and 1901, a large amount was expended in repairing and strengthening the breakwater from 1,114 feet from the shore end inward. The outer works were repaired and strengthened by filling in the face-chambers to about half tide level with concrete and by close-piling; the stringers and covering of the inner-work, from 581 feet to 1,114 feet from the shore end, were renewed and the work of placing a talus of concrete blocks on the seaward side was commenced.

In 1902-03 the sum of $10,005 was expended in repairing and strengthening the breakwater; the new work including the reconstruction of 87 feet of outer face-work 24 feet in width and 15 feet in average height, of which the outer face-chambers were filled with concrete and the outer face close-piled: and in the reconstruction, to within 1 foot 4 inches of the top, of part of outer end, 49 feet in length, 24 feet in width and 15½ feet in average height which remained to be completed and to have the outer face-chambers filled with concrete and the outer faces close-piled.

In 1903-04 the sum of $21,266.79 was expended in continuing the work of repairing and strengthening the breakwater, in progress in 1902-03. The work performed included the completion of a block 49 by 24 feet at the outer end of outer face-work and its extension to form a block 49 feet square, of which the outer face-chambers are filled with concrete and the outer face close-piled; in constructing 218 feet of new face-work, 9 feet wide and 11 feet in height, inside of the old outer face-work 226 to 444 feet from the inner end, and in filling it with concrete over 109 feet from its outer end inwards; in reconstructing, filling face-chambers with concrete and close-piling, 112 feet of outer face-work from the inner counterfort (600 feet from the inner end) outwards; and in levelling up and covering with concrete, the space between the inner and outer works from 600 feet from the inner end outwards.

During the fiscal year 1904-05 the sum of $12,695.09 was expended in continuing the work of repairing and strengthening the breakwater. The work performed included filling face chambers on the seaward side with concrete (a) over 131 feet, 8 feet wide by 11 feet deep, 216 to 347 feet from the inner end: (b) over 75 feet, 8 feet wide and 14 feet deep, at the outer end and south face of the inner counterfort; (c) over 140 feet 9 feet wide and 12 to 14 feet deep, 720 to 860 feet from the inner end; (d) in two chambers at outer end, respectively 10 x 11 x 16 feet deep and 9 x 9 x 18 feet deep; paving with concrete between the inner and outer works, 600 to 642 feet from the inner end, 8 inches deep; constructing an angle block of concrete to connect the outer face-work with the new crib block, 216 to 232 feet from inner end; reconstructing roadway (a) 12 feet wide and 4½ feet deep over 199 feet, 234 to 433 feet from inner end; (b) 16 feet additional width over 122 feet, 234 to 356 feet from inner, including in both cases new floor-stringers and covering, renewing floor-stringers, covering and laying some ballast; (a) over 150 feet of outer work, 433 to 583 feet from inner end; and (b) over inner counterfort, 58 x 24 feet which was also raised 2 feet; close-piling, (a) outer face over 134 feet, 234 to 368 feet from inner end; (b) 11 feet of the south face of the inner counterfort; (c) outer face over 191 feet 666 to 857 feet from inner end; and (d) 20 feet of north face of the central counterfort: reconstructing 130 feet of timber breast-work, 5 to 10 feet in height above covering, at back of inner work, and nearly opposite the central counterfort: constructing a stone filled crib block 40 x 20 x 9 feet high on the seaward side and adjoining the concrete angle block, 216 to 232 feet from inner end; and constructing a shed, for the stone crusher, 72 feet x 17 feet with 8 feet posts.

CRIBBIN'S POINT.

Cribbin's Point, Antigonish county, is on the west side of St. George's bay, eight miles to the southward of Cape George, and five miles to the northward of the entrance into Antigonish harbour.

The wharf, completed in 1892-93, extended 300 feet in a southerly direction from the point, and has an approach 195 feet in length. It is 20 feet in width for a distance of 120 feet from the inner end, and 30 feet for the remaining 180 feet, the inner 50 feet being of stone, and the outer 250 feet of close-faced timber work, fully ballasted.

The native face-timbers having become weakened by the ravages of the teredo, during 1896-97-98-99, the outer end, the seaward face for a distance of 20 feet and the inside face for a distance of 10 feet were close-piled with creosoted timber piling; a talus of quarried stone was placed on the seaward side over a distance of 180 feet from

the outer end; the work was re-ballasted where necessary, and a 'timber break' 100 feet in length and 2½ feet in height, above the cap-timber, was constructed on the seaward side of the inner end of the wharf, to prevent the sand outside from washing on to the work, during storms.

During 1899-1900, the sum of $1,000 was expended in obtaining a portion of the creosoted timber required in the construction of a proposed extension of the wharf.

During the year 1900-01, the sum of $3,079.98 was expended in procuring the balance of the timber required for the extension, and in repairing the outer end of the old work, which was almost destroyed during the severe gales in the autumn of 1900. The repairs consisted in the re-construction of the top of the outer end of the wharf, for a distance of 66 feet and to an average depth of 8 feet and in placing heavy quarried stone in the talus on the seaward side of the reconstructed work.

As the sand at the end of the wharf, at which there were originally 11 feet of water, at low water, had made up to a height of about 6 feet, since its completion, leaving but 5 feet of water at low water, it was deemed necessary to found the extension on the original bottom, and the dredge 'George McKenzie' was engaged from May 30 to July 12, 1901, in dredging out the foundation for the new work and the approaches thereto, at a cost of $1,604.44.

During the year 1901-02, the sum of $2,896.31 was expended in the construction of the extension to the wharf, for which the materials were procured during 1899-1900-01. The new block is 48 feet long and 20 feet wide and it is placed across the end of the wharf, forming an 'L' 18 feet in length, intended to retain the stone in the talus. The block is of an average height of 20 feet, and is constructed of round timber cribwork, laid open-faced with creosoted timber substructure, close-sheathed on all outer faces, and filled in solidly with ballast.

During the year ended June 30, 1905, an amount of $2,127.22, was expended in close-sheathing the whole of the inner face of the old work; a portion of the top at the inner end, comprising floor-stringers, covering and cap, was renewed; the stone retaining wall at the inner end was repaired; the 'timber break,' on the seaward side of the inner end, was extended a distance of 75 feet, the cap and covering were renewed where necessary; new ballast was placed where it had settled, and additional heavy stone was placed in the talus.

The total amount expended on this work to June 30, 1905, is $23,838.77, including the cost of dredging.

CUNNINGHAM'S POINT.

Cunningham's Point, Guysborough county, is on the southern side of Milford Haven river (Guysborough harbour), an extensive inlet at the head of Chedabucto bay, eight miles inland, and within half a mile of the head of navigation for small vessels.

During the fiscal year 1904-05, the sum of $103.58 was expended in procuring nearly all the timber, except floor-stringers and covering, required for a wharf extending 92 feet from high water to 10 feet 6 inches at extreme low water, and in constructing the substructures of the inner and central crib blocks. The wharf, when completed, will consist of a stone abutment and embankment, two crib blocks each 18 feet by 20 feet and an outer block 20 feet by 40 feet with one span of 13 feet and two of 16 feet.

Spring tides rise 6 feet.

D'ESCOUSSE.

D'Escousse, Richmond county, is a thickly settled district on the north-eastern coast of Madam island, and on the southern side of the entrance into Lennox Passage, a strait separating the Island of Madam from Cape Breton island, and connecting St. Peter's bay with the Strait of Canso.

The harbour is formed by outlying islands and connecting beaches, and the entrance is from the eastward through a narrow channel obstructed by a bar, with 10 feet

at low water. It is about three-quarters of a mile in length and one-third of a mile in width, and has a depth of about 21 feet at low water springs, which rise 6 feet.

On March 23, 1903, a contract was entered into, in the sum of $4,388, for the construction of a public wharf and warehouse, the work of construction was commenced on July 27 and was brought to a satisfactory completion on November 21, 1903.

The wharf is a pile structure, with creosoted timber bearing piles, beyond the line of low water; it extends to 12 feet at low water, and is 307 feet long and 22 feet wide, with an 'L' on the western side of the outer end, 22 feet by 22 feet. The warehouse is constructed on a pile foundation, on the eastern side of the inner end of the wharf, and is 30 feet long by 20 feet wide, with 10 feet posts. The sides and roof are boarded in and shingled, and painted. The floor is laid double, and the building has four windows and a large sliding door, all properly fastened.

During the spring of 1904, the inner end of the work for a distance of 137 feet was lifted (to a height of about 3 feet in the centre) by the force of heavy ice rising with the tide, and the sum of $900 was voted for expenditure during 1904-05, to repair the damage. Out of that amount, the sum of $899.78 was expended in the construction of cribwork blocks under the damaged portion of the wharf and under the warehouse, and in lowering the top down to its original level, but the amount granted did not prove quite sufficient to complete the work proposed.

DEVIL ISLAND.

Devil Island, Halifax county, is a small low island about 2,000 feet in length by 1,000 feet wide, with its highest point about 15 feet above H.W.O.S.T., situated about eight miles to the south-east of the city of Halifax, and one-third of a mile from the mainland of Hartland Point, to which it is connected by a reef, covered with three feet of sand, and having 3 feet of water over it at low tide. The island is permanently inhabited by about 100 people, wholly dependent upon fishing for their livelihood.

In 1892, a breakwater, 300 feet in length, 15 feet in width, with an 'L' at the outer end, 30 feet in length, at which there is a depth of 5 feet at L.W.O.S.T., was constructed at a cost of $1,941.18.

In September, 1893, the sum of $87.96 was expended in close-sheathing, 100 feet in length of the western or seaward face of the breakwater, in order to prevent the sea from washing the gravel from under the ballast floor and obstructing the berths for boats on the eastern side.

In 1899-1900, the sum of $97.13 was expended in petty repairs, rendered necessary by damage done by a severe storm March 1, 1900.

In 1903-04, the sum of $249.68 was expended in repairs and improvements. Of this sum, $149.68 was expended in filling the spaces between the face-logs with new timber rendered necessary by the eating away of the old timbers by the limnoria. The outer end was also re-ballasted. The remaining $100 was expended in building a small wing or break on the western side of the shore end of the breakwater, to prevent the gravel from washing in past the shore end of the work. The new block is 35 feet long, 10 feet wide and 7 feet high, well and strongly built of round-log cribwork filled with stone.

Spring tides rise 6 feet, neaps, 5 feet.

In 1904-05, the sum of $499.48, was expended in building a small breakwater on the northern point of the island, to prevent the sea from washing around and disturbing boats lying at or near the old breakwater, on the west side. The new work is 155 feet long, 15 feet wide and from 4 feet to 8 feet high, substantially built of round-log cribwork and filled with stone ballast.

On June 19, 1905, a contract was entered into with Messrs. Reid and Archibald, of Halifax, to construct a new breakwater immediately to the west of the old work, which was so far eaten, by both the teredo and the limnoria, as to be in a tumble-down condition and of very little further service. The amount of the contract was $5,980. The

work to the level of half tide is to be built of creosoted timber, which was furnished and delivered by the department.

Total expenditure in 1904-05, $4,144.28.

DIGBY.

Digby, Digby county, is the shire town of the county, with a population of about 1,500 and is beautifully situated on the south-western end of Annapolis basin. It is an important station on the Dominion Atlantic railway, 67 miles north of Yarmouth, 150 miles from Halifax, 20 miles from Annapolis and is also the port of call for the daily steamer of the Dominion Atlantic railway plying between Digby and St. John. The harbour is open at all seasons and well protected from nearly all quarters; storms, however, from the north and north-east drive a heavy sea against the pier, and if, at such times, there be much drift ice in the basin, the structure is likely to suffer damage.

The first pier was built by the government of Nova Scotia some years before confederation, and was nearly destroyed by the gale which swept the Bay of Fundy in 1866-67. In 1869, to aid in rebuilding the work, the sum of $2,920 was granted by parliament and transferred to be expended by the provincial government. The pier, as then built, was of pile-bents, 12 feet apart for 550 feet; next a block of cribwork 80 feet long, 45 feet wide, the southern half of which sloped so as to form an incline, rendered necessary by the great rise and fall of the tide (24 feet at springs). The incline was finished by a block 170 feet long by 22 feet wide, the northern half of this portion of the pier being all pile-bents, 8 feet apart. The outer end of the pier consisted of a block 56 feet long, 45 feet wide and about 40 feet high. The whole of the northern face was close-piled, the total length of the structure being 870 feet.

In 1872 the sum of $1,650 was expended by the department in completing and repairing the pier. In 1874 a number of piles and braces were renewed, the outer block newly fendered and new joists and planking laid for the total length. During the gale of February 22, 1879, a schooner loaded with produce for the West Indies parted its cable and was swept bodily through the pier carrying away a length of 130 feet, which was rebuilt at a cost of $2,367.73.

In 1881-82 the sum of $888.57 was expended in renewing a few piles and other timbers that had been eaten away by the limnoria.

In December, 1885, the outer end of the pier was destroyed by a severe gale and in 1885-86, the sum of $1,945.62 was expended in repairs.

In 1886-87, a further sum of $767.62 was expended on the same repairs.

In 1887-88 the sum of $7,467.68 was expended in the construction of a block, 40 by 40 feet, on the site of the displaced outer block; of an inclined landing 26 feet wide and 80 feet long, between the new outer block and the undestroyed inner portion of the pier; and the building of a roadway on pile and frame bents, connecting the whole work with the new outer block. In January, 1888, operations were begun towards building the pier to its original length, and the departmental report for the year 1888-89, shows an expenditure of $4,498.14. The new work consisted of a new block 45 feet by 45 feet to replace the former one. It is built of round timber, with double sets of face-logs and is fully ballasted; it is 45 feet high and connected with the outer portions of the work by a cribwork inclined landing, over the top of which a deck wharf is carried on heavy frame bents. The inclined landing and its superstructure is 25 feet wide. The inshore or pilework section was strengthened and repaired in places, and parts of the worn and decayed planking were renewed. In 1889-90, heavy piles were driven along the northern and southern sides of the centre block, which was shifted and damaged by a storm in December, 1885, to prevent any further movement.

In 1890-91, and again in 1891-92, small expenditures were made on general repairs.

In 1890, a contract was entered into for the construction of a landing pier on a

new site, namely, on the north side of the 'Racquet' about a mile to the northward of the present pier and the town of Digby. For this purpose a quantity of timber and iron had been secured by the contractor. Owing, however, to numerous delays, and the death of the contractor, the intention of building this new pier was abandoned and it was decided instead to repair and re-construct the present pier, utilizing, as much as possible, the timber and iron, belonging to the estate of the deceased contractor. The work of re-construction was carried out by day labour at a cost of $15,248.18.

In April, 1894, a length of 330 feet of close-piling along the north side of the pier, together with the caps and walings for the same distance and about ninety of the outside bearing and fender piles were destroyed by a violent gale. In order to save the balance of the structure from the scouring action of the under-tow set up by the sheet piling, the rest of it was immediately cut out and the sheet-piling and other timber that had been knocked adrift was saved piled up on the inner wharf. Subsequently, in May and June, 1894, the sum of $1,410.03 was expended in making good the damage done by the April storm. The sheet-piling, having proved a mistake it was not replaced but about ninety new, heavy piles were driven and thoroughly braced and bolted.

In 1895-96, the sum of $4,341.99 was applied in filling with substantial close-piled trestle work, a space or recess on the north side of the pier, near its outer end, 210 feet long by an average width of 17 feet, and in raising from 2 feet to 3 feet, and renewing the entire floor of the outer 225 feet in length .

In 1896-97, the sum of $3,132.89 was applied to the re-construction of the southern half of the shore end of the pier for a length of 450 feet, in substantial pilework. The new work was covered with 6-inch plank and securely capped fendered and braced. In the year 1898-99, the sum of $579.80 was expended in the renewal and repair of the outer south corner of the pier which was damaged by being struck by the Dominion Atlantic steamship 'Prince Rupert,' during a south-east blow in April, 1899. In addition to this, 40 feet in length of the inclined slip was replanked with 6-inch plank and a couple of new fenders were bolted into position.

In 1900-01, the sum of $2,000 was expended in necessary renewals. The work done consists of the replanking of the wide part of the inclined slip 125 feet long by 25 feet wide, the narrow part 87 feet long by 17 feet, and a portion of the floor of the main wharf, 18 feet by 22 feet, with 6-inch spruce deals.

In addition to this, an open shed 100 feet long by 33 feet 7 inches wide, was erected at the outer end of the present pier and office, and over the inclined slip to protect freight when landed from steamers.

The importance of this pier may be gathered by the fact that the collection for wharfage dues now amounts to nearly $3,000 per annum.

In 1901-02, the sum of $3,300 was expended in repairs and improvements. The old freight shed was moved 100 feet up the pier and raised 4 feet in height. Adjoining it outwardly there was built a new shed 202 feet long, the upper 100 feet in length being built with the floor on a level with a box car and the lower 100 feet built level with the floor of the pier. A portion of the pier floor was also renewed. The arrangement is now most satisfactory and convenient for the handling of freight.

In 1902-03, the sum of $3,697.77, was expended in re-building the lower 60 feet, in length of the inclined slip. Owing to this portion of the work, which was of cribwork, being much injured by the limnoria, the new portion was built of pile-work, the piles being driven through the ballast cribs. It was difficult and expensive work. In addition to this, a considerable portion of 6-inch plank on the shoreward end of the pier was renewed, and a number of the long hardwood fenders that had been broken by the daily steamer from St. John were renewed.

In 1903-04, the sum of $313.15, was expended in renewing two hardwood fenders, building a stairway from the main dock to the inclined slip and putting new eaves-gutters, down-spouts and a few other petty and miscellaneous repairs to the freight shed.

In 1904-05, the sum of $1,440.60, was expended in renewing a considerable portion of the 6-inch flooring, which was worn out under the steamer freight traffic.

The total expenditure to June 30, 1905, is $81,026.94, including a refund of $11,623 to the provincial government, in 1887-88, and not including an expenditure of $4,192.02 in dredging.

This work was transferred to the control of the Department of Marine and Fisheries on June 12, 1888.

Spring tides rise 24 feet, neaps about 20 feet.

EATONVILLE.

Eatonville is situate on the south-east side of Chignecto channel, about ten miles north-east of Cape Chignecto.

In 1887-88 a breakwater, 123 feet long, 20 feet wide and with an average height of 15 feet was built by the department at a cost of $2,000.

During 1888-89, the sum of $3,000 was expended by the department in an extension 80 feet in length, but when this extension was about half finished it was seriously damaged.

In 1889-90, at a cost of $2,000, the extension begun the year before was satisfactorily completed. The whole work was strongly built of round-log, stone-filled cribwork, close-sheathed on the outer side with 6-inch flatted spars.

In 1892 a further extension shorewards this time, was built, about 200 feet long, 20 feet wide and from 10 to 19 feet high. Its outer face is close-piled for its entire length. The cost was $2,700.

In 1895 the sum of $250 was spent in repairs and during the fiscal year 1899-1900, the sum of $791.40 was again expended in repairing this work.

During the last fiscal year the sum of $174.26 was expended in repairing the top of the outer piece of this work.

Spring tides rise here 40 feet, neaps 34 feet.

EAST BERLIN.

East Berlin, Queen's county, is a small fishing and farming settlement about 11 miles north-east of Liverpool, with a population of about 300.

In 1902-03, the department commenced the construction of a breakwater at this place; work was completed in 1903-04, at a total cost of $2,692.87.

The sum of $1,000 was granted towards the extension of the breakwater, but, owing to the fact that no competent foreman was available nothing was done during the last fiscal year.

EAST CHEZZETCOOK.

East Chezzetcook, Halifax county, is a deep inlet, situated about 20 miles to the east of Halifax harbour. The inlet is surrounded by a population of some 300 or 400 people engaged in fishing and farming. In 1904-05, the sum of $4,093.24 was expended in the construction of a detached breakwater, for the purpose of forming a shelter for fishing boats and other craft. The work is 420 feet long, 14 feet wide and from 6 to 8 feet high, substantially built of cribwork, and resting on a substructure of brush and stone 20 feet wide and 2 feet thick.

EAST END, CAPE SABLE ISLAND.

East End, is applied to the eastern end of Cape Sable island, which portion of the island had no refuge for boats but the breakwater at Stony island.

The inhabitants of the vicinities asked that a pond, situated at the East End, be opened and made available for a harbour of refuge for small boats. The work consisted in dredging a channel to below L.W.O.S.T. and building protection groynes.

The sum of $3,000 was appropriated for that purpose. During the last fiscal year a channel was dredged 365 feet long, 20 feet wide, with a depth of water, at H.W.O.S.T. of 7 feet ; though not completed, it now can be used at half tide by the fishing boats which draw from 4 feet to 5 feet. The protecting walls are 380 feet and 330 feet long respectively, 10 feet wide on top, and an average height of 11 feet. They are built of continuous stone-filled cribwork, well fendered and fastened.

Spring tides rise 9 feet, neaps 7 feet.

Expenditure during last fiscal year, $2,606.17.

EAST HARRIGAN COVE.

East Harrigan Cove, Halifax county, is a fishing and mining settlement of about 200 people, situated nine miles east of Salmon river or about sixty-five miles in an air line east of Halifax. It is two and a half miles east of Harrigan Cove proper, where a small public wharf was built in 1901-02.

In 1904-05, the sum of $1,180.02, was expended in constructing a public wharf of pile-work, 50 feet square and 20 feet high at the outer end, giving a depth of water, at H.W.O.S.T., of about 16 feet. The wharf is approached by a stone and earth embankment 44 feet long, 50 feet wide and of an average height of 5 feet. A road approach of about 500 feet remains to be constructed.

EAST JEDDORE.

East Jeddore, Halifax county, is a settlement of about 600 people, scattered along the eastern side of Jeddore harbour, about thirty miles east of Halifax and ten miles west of Ship Harbour. The inhabitants engaged chiefly in fishing, the fleet comprising ten schooners and a number of small boats. The harbour is an excellent one with a good shelter and easy approach, the channel being from 20 feet to 40 feet deep, and from 800 to 1,000 feet wide. Hitherto there has been no loading or landing pier in the harbour and goods shipped by or landed from schooners have had to be transferred to and from the vessels in boats. In the fiscal year ending June 30, 1904, the department expended the sum of $1,403.88 in constructing a pile-wharf, 100 feet long, 25 feet wide and with an ' L ' at the outer end giving a face length of 40 feet. The height of the work along the outer face is 20 feet giving a depth of water, at L.W.O.S.T., of about 10 feet.

In the year 1904-05, the sum of $928.07, was expended in repairing and partially re-building the work which was seriously damaged during the winter by exceptionally heavy ice.

ECONOMY.

Economy, Colchester county, is situated on the north side of the Basin of Minas, 17 miles west of Great Village and twenty-one west of Parrsboro'.

A wharf was built by the department in 1887-88, 208 feet long and 25 feet wide, at a cost of $2,500. In the summer of 1890 an extension was built 100 feet long and 25 feet wide with an ' L ' 25 feet long on the outer end, at a cost of $2,500. In the summer of 1891 an extension was built, 100 feet long and the same width as the rest of the work, at a cost $2,200. In the autumn of 1891, a third extension was built 55 feet in length at a cost of $1,000. The whole structure was substantially built of round-log cribwork, well ballasted and double-fendered. Its average height is about 18 feet at the outer end. At H.W.O.S.T., there is about 16 feet of water.

In 1895-96 the sum of $159.45 was spent in laying new plank flooring for 190 feet in length of the shoreward portion, and putting in some new fenders on the outer block.

Owing to the mud flats in the cove, where the present wharf was built, gradually filling up with mud, this wharf has become almost useless, and in 1903-04, the sum of $2,071.78 was expended in building a new pile-wharf at the mouth of the

little creek or brook, farther east than the old wharf. The new structure is a pile wharf, 200 feet long, 25 feet wide with an 'L' on the outer end giving a face length 45 feet and depth of water, at H.W.O.S.T., of 16 feet.

In 1904-05, the sum of $1,000 was expended in taking apart and rebuilding the pile-wharf built in the previous year, which was lifted by exceptionally heavy ice in the previous winter. In addition to this two small pieces of cribwork, 70 feet long on the east side and 80 feet long on the west side of the shore end of the wharf, were built for the purpose of protecting the beach carrying the public road. Each piece of cribwork is 10 feet wide and from 6 to 8 feet high.

Spring tides rise 48 feet, neaps 42.

FINLAY POINT.

Finlay Point, Inverness county, is on the west coast of Cape Breton island, three miles north of the entrance to Mabou harbour.

In 1902-03 the sum of $529.78 was expended in procuring all the timber, with the exception of floor-stringers, covering and guard-rails, and nearly all the iron required in the construction of a proposed wharf.

In 1903-04 the sum of $1,466.22 was expended in procuring the balance of the materials required and in nearly completing a wharf of cribwork, 15 feet in width on top, extending from low water, 146 feet to 3 feet at low water, with an approach of brush and stone 170 feet in length. At the end of the year the cribwork was completed with the exception of the fenders, covering and guard-rails over 82 feet from the inner end outwards, and the brush and stonework was nearly up to the required height.

During the fiscal year 1904-05, the sum of $984.51 was expended in completing the cribwork and in reconstructing the brush and stonework, and placing a talus of quarried stone on its seaward side.

Spring tides rise 4 feet.

Total expenditure to June 30, 1905, $2,980.51

FORT LAWRENCE.

Fort Lawrence is situated at the mouth of La Panche river, and was formerly the proposed terminal of the now defunct Chignecto Ship Railway. It is about three miles west of Amherst town and is the nearest approach to navigable waters for that town.

This very important manufacturing centre was desirous of having some means of shipping their manufactures, &c., and bringing in their imports, consequently they asked for the construction of a public wharf at Fort Lawrence.

A contract for the construction of this work was let to Messrs. Lyons & White, for $14,895; it was completed on 30th day of November, 1904. Besides this there was also another contract let to the same firm amounting to $1,137, for fendering the inner side of the wharf which at first was not contemplated, but owing to the fact that two good berths for large vessels could be thus procured was recommended.

This wharf starts from the dyke on the bank of the river, and runs out almost at right angles to a sand bank, for a distance of 249 feet with a width of 36 feet on top; it then turns and runs as nearly parallel to the bank as possible for a further distance of 300 feet, this latter portion being 50 feet wide on top over all. Its height at the outer end and in fact along the entire frontage (the 300-foot portion) in 48 feet. It is constructed of pile-trestle bents, separated 8 feet from centre to centre of pile-heads, whilst the lateral piles are driven 7 feet apart from centre to centre of pile-heads. The outside and inside bearing piles are double-fendered and pile-braced. All the timber is of the heaviest nature obtainable in this country. The height of the shoreward section runs from 2 to 44 feet.

Spring tides rise here 41 feet and neaps 34 feet.

Total expenditure during last fiscal year, $12,798.50.

FRENCH VILLAGE.

French village, Halifax county, is a small scattered village of about 150 people, chiefly engaged in fishing, situated on the east side of St. Margaret's bay, twenty-one miles west of Halifax.

In 1904-05, the department expended the sum of $2,037.67 in constructing a pile-wharf, 150 feet long, 25 feet wide, with an 'L' on the outer end, giving a face length of 60 feet and a depth at L.W.O.S.T., of about 18 feet.

Spring tides rise 6 feet, neaps, 5 feet.

The shore approach to the wharf is a rock bank, 50 feet long and from 3 feet to 6 feet high.

GABARUS.

Gabarus bay, on the Atlantic coast of Cape Breton island, is five miles wide at its entrance, between White Point and Cape Gabarus.

In 1901-02, a breakwater extending 190 feet to 12½ feet at low water, was constructed at Harbour Point near the head of the bay. The inner section, 70 feet in length, is 16 feet in width and the outer section, 120 feet in length, is 24 feet in width on top. The inner section is constructed of round timber cribwork and the outer of squared timber close-faced, with creosoted timber substructure.

A contract was entered into May 4, 1905, for the construction of an extension of the breakwater 128 feet in length to 17¾ feet at low water, for the sum of $19,009 to consist of an inner section, 47½ feet in length and 24 feet in width on top, and an outer section, 80½ feet in length and 30 feet in width on top, of squared timber, close-faced, with ties of round timber and with creosoted timber substructure, fully ballasted, fendered and close-sheathed on the seaward face, at the outer end and on the inner face, for a distance of 15½ feet from the outer end.

Spring tides rise 5 feet.

GABARUS HARBOUR.

Gabarus harbour, Cape Breton county, on the eastern side, and near the head of Gabarus bay, is of limited area but of great value to the fishermen.

Expenditures were made in 1873-74 and in 1880-81, in deepening the entrance, through rock, to about 1 foot at extreme low water.

During the fiscal year 1904-05, the sum of $1,584.91 was expended in opening a new channel, through rock, clay and boulders, 25 feet in width and from 2½ to 3½ feet in depth at low water, to the westward of the former entrance, with the intention of obtaining, ultimately, a uniform depth of 3½ feet at low water and a width of 30 feet at bottom.

Expenditure to June 30, 1905, $4,759.96.

GEORGEVILLE.

Georgeville, Antigonish county, is on the southern shore of Northumberland strait, six and a half miles south-west from Cape George.

A wharf was constructed in 1892-93, to afford the inhabitants shipping and landing facilities. It was 207 feet in length and 20 feet wide, with an 'L,' 20 feet by 20 feet on the eastern side of the outer end; but during 1896-97-98, an extension, 44 feet in length, 40 feet in width, with an 'L,' 20 feet by 24 feet was added thereto, making a total length of 251 feet by 20 feet wide for a distance of 187 feet, 40 feet wide for a distance of 40 feet, and 60 feet wide for the remaining distance of 24 feet. The inner

end of the wharf for a distance of 87 feet was of stone, covered with plank, and the remainder of the work, of squared timber cribwork, protected by sheathing and fenders. The depth of water at the outer end, at low water, is 7 feet.

During the severe north-west gale of September 12, 1900, which caused so much damage in the Gulf of St. Lawrence, the woodwork on the stone approach was partly lifted by the sea and removed several feet, and the sum of $291.23 was expended in putting it back into position, but it was shortly after again disturbed by the sea during a heavy gale.

During 1901-02, the sum of $699.47, was expended in removing and taking apart the woodwork on the top of the stone approach ; the stone wall was taken down to a depth of 4 feet and in its place cribwork was substituted, fully ballasted and covered with the old plank, and the outer faces of both cribwork and stone wall were close-sheathed.

The sum of $2,500 was voted for expenditure during 1903-04, towards the extension of the wharf, 50 feet in length and 25 feet wide, with an 'L,' 40 feet on the western side of the outer end.

The authority for the expenditure of the amount was received on November 14, 1903, too late in the season to commence work of construction, but plan and specification for the work were prepared, the necessary materials were procured during the winter and spring, and all was ready to commence construction at the end of the fiscal year; and out of the amount voted the sum of $2,499.70 was expended during the year.

The sum of $2,000 was voted for expenditure during 1904-05 in the construction of the extension, the materials for which were procured during 1903-04.

The substructure was constructed in two separate blocks, one for the extension proper, the other for the 'L.' The first was successfully placed in position and secured, and the second was also placed in position, but before it could be sufficiently ballasted, it was disturbed by a gale, and moved several feet away from the other. Steps were at once taken to refloat it back into position, but before this could be accomplished, a second gale removed it still farther to the westward. Owing to the lateness of the season, orders were given to complete the extension, independently of the 'L,' and to haul the wrecked block ashore and save the materials in it. The extension block was completed, the wrecked block was brought ashore, taken apart, and the materials were saved and secured, and in doing so the appropriation became exhausted.

Spring tides rise 4½ feet.

GRAND ETANG.

Grand Etang, Inverness county, is situated on the Gulf of St. Lawrence, about midway between the harbours of Margaree and Cheticamp.

The opening of a channel through a beach which separated the waters of the gulf from a large and deep fresh water pond, and the construction of channel protection works to make the pond available for use and shelter of fishing boats and small vessels, necessitated the diversion of the highway and the construction of a bridge across the pond, 500 feet above the former crossing.

The bridge was 563 feet in length, including the east and west approaches of brush and stone, with crib-work abutments, respectively, 94 and 51 feet in length, and 438 feet of pile work. It was provided with a hand-rail on both sides, an opening for boats and a draw. The depth at extreme low water over the central 200 feet of the length of the work was about 6 feet and to firm bottom, through water and soft mud, from 21 to 24 feet. The piles having been weakened by the ravages of the teredo, temporary repairs were made in 1898-99 and 1899-1900. In 1901-02 the sum of $2,799.35 was expended in temporary repairs and in procuring all the creosoted piling and part of the native timber required for its reconstruction.

In 1902-03 the sum of $2,779.78 of which $1,279.78 was paid out of appropriation for the following year, was expended in temporary repairs to the old bridge and in procuring the balance of native timber required and constructing a new bridge parallel to and distant 9 feet from the south or inner side of the old bridge.

It having been ascertained that the piles in three bents at the east end of the new bridge, and in one bent at its west end, had been raised slightly by the ice, authority was obtained in June, 1904, to expend the sum of $300 in placing brush and stonework to prevent further lifting, but up to the close of the fiscal year 1904-05, only the sum of $52.75 had been expended.

The total expenditure in connection with works at Grand Etang to June 30, 1905, was :

On channel and protection works	$ 23,870 64
On bridge construction, 1904-05	3,690 20
On repairs to bridge and construction of new bridge	5,385 08
	$ 32,945 92

GRAND NARROWS.

Grand Narrows, Cape Breton county, is on the south-eastern side of the Barra strait, which connects the Great with the Little Bras d'Or lake. It is an important station on the Intercolonial Railway, at the southern end of the railway bridge which spans the strait at this place, and is also a landing place for steamers, which call twice a day with mails and passengers for and from Baddeck, and make connection with the express trains going east and west.

The old wharf was 287 feet in length, including 67 feet of cribwork filled with brush and stone and covered with gravel; 80 feet of pilework built in 1885-86 by the department over the remains of an old landing pier, built by the provincial government; and an extension 140 feet in length, built by the department in 1883-84. The extension consisted of three blocks, each 20 feet by 20 feet, and an outer block or head, 20 feet in line of work and 60 feet in length, with openings between them of about 16 feet.

Repairs were made upon the structure from time to time, but owing to natural decay and the ravages of the teredo, it fell eventually into a dangerous condition ; it was decided to re-construct it with creosoted timber piling.

During the year 1901-02, the sum of $1,711.50 was expended in procuring the largest portion of the materials required in the re-construction of the wharf, including the creosoted piling.

During 1902-03, the sum of $1,300.66 was expended in re-constructing the work with pile-work, to the end of the old work and 10 feet beyond; the work being 297 feet long, 24 feet wide for a distance of 277 feet and 30 feet wide for the remaining distance of 20 feet, with a depth of 11 feet, at low water, at the outer end.

In order to render the wharf accessible to steamers of a greater draught, the sum of $3,500 was voted for expenditure during 1903-04, towards the extension of the wharf to 15 feet at low water, a distance of 57½ feet, on the centre line, and the construction of an 'L,' 30 feet by 30 feet, on the southern side of the outer end.

Plan and specification for the proposed pile-work were prepared, all the necessary materials were obtained, but as the creosoted timber required was not delivered until the latter part of June, construction could not be commenced by the end of the fiscal year; and out of the amount voted, the sum of $2,466.37 only, was expended.

During the fiscal year 1904-05, the sum of $1,435.49 was expended in the construction of the pile-extension, for which the materials were procured during the previous year.

The total expenditure on this work up to June 30, 1905, including a refund of $1,289.70 paid to the provincial government is $12,600.24.

GRAND RIVER.

Grand River, Richmond county, is a small tidal stream rising in Loch Lomond and emptying into the Atlantic ocean, six miles to the eastward of the entrance to St. Peter's bay. The entrance is obstructed by a bar of sand over which there is a depth of about 3 feet at extreme low water, and was, until recent improvements were made, rendered dangerous by several large rocks. Inside, the channel carries 6 feet at extreme low water to within half a mile of a bridge crossing the river, three miles inland.

Spring tides rise 6½ feet.

In 1903-04, the sum of $648.41 was expended in removing two large rocks, points of reef, one on either side of the entrance.

During the fiscal year 1904-05, the sum of $485.35 was expended in removing a large rock on the western side of the entrance, thus completing the improvements undertaken.

GREEN COVE.

Green Cove, Victoria county, is a small fishing station on the north-eastern coast of Cape Breton island, about midway between North bay, Ingonish and Neil's Harbour, being about five miles north from the former and four miles south from the latter.

The cove is a small indentation in the general coast line, about 400 feet in depth and 900 feet in width, protected by a reef on the southern end, and by outlying ledges from the eastward.

During 1889-90, the sum of $200 was expended by the department in improving the landing for boats at the northern end of the cove, by the removal of bed-rock and boulders off the beach.

On February 4, 1903, a contract was entered into for the sum of $6,475 for the construction of a breakwater extending from the shore to the innermost of the outlying ledges, a distance of 450 feet.

The construction of the breakwater was commenced on August 4, 1903, but owing to an extremely stormy autumn, causing considerable damage and consequent delay, the progress was slow, and up to the end of December following, when work had to be suspended for the winter, only about one-half of the work was completed. The work was resumed on the opening of navigation in May, 1904, and at the end of June it was completed, excepting some slight trimming of the stone slopes.

The work was finally completed and accepted on July 8, 1904.

The breakwater is 450 feet long and 16 feet wide at a height of 2 feet above high water, with sides sloping 3 to 1 on the outer, and 2 to 1 on the inner face, with top rounded; the inner 180 feet consisting of a quarried stone embankment and the outer 270 feet of a quarried stone embankment with cribwork core.

Expenditure during last fiscal year, $492.50.

GROSSES COQUES.

Grosses Coques, Digby county, is situated at the mouth of a small river that enters St. Mary's bay, about seven miles south-west of Weymouth, and three miles from Belliveaus Cove. The settlement comprises a scattered population of about 300 people engaged in farming and to a small extent, in fishing.

The works here, which were begun by the inhabitants, aided by grants from the provincial government, in or before the year 1852, consist of a sea-wall, or more properly a river-wall, a breakwater and a short groyne, all built of round-log cribwork, more or less filled with stone ballast.

The river-wall is 620 feet long, from 15 to 22 feet wide, from 15 to 18 feet high along the face and with its top about 5 feet above H.W.O.S.T. In 1889-90, this work

having become much dilapidated, and portions of its face having fallen into the stream, the department expended the sum of $3,000 in thoroughly restoring it.

The breakwater, which is parallel to and about 70 feet distant from the river-wall is 550 feet long, 12 to 15 feet wide, 8 to 12 feet high, and with its top about level with H.W.O.S.T. It is roughly built of round-log cribwork and partially filled with stone. In 1889-90, when the department restored the river-wall, the breakwater was partly rebuilt by the inhabitants.

The groyne at the outer end of the river-wall was 100 feet long, 15 feet wide and from 6 to 10 feet high. To a certain extent it served to keep the gravel from washing into the channel between the breakwater and the river-wall, but it became a complete wreck several years ago.

In 1904-05, the sum of $1,917.70 was expended in improvements and renewals. The work done consists of the extension of the breakwater on the south side of the stream mouth by a new block 60 feet long, 20 to 26 feet wide and from 16 to 20 feet high. On the shore end and south side of this new block the ancient groyne was restored by the construction of a new block 70 feet long, 10 feet wide and 6 feet high. On the north side of the stream mouth, the old breakwater was extended by a new block 100 feet long, 11 feet wide and from 8 to 12 feet high, the whole of the above work is of solid stone filled cribwork.

The total expenditure by the department to June 30, 1905, is $4,917.67.

GUNNING COVE.

Gunning Cove, Shelburne county, is a small village of about 200 people, situated on the south-west side of Shelburne harbour; it is the centre of a scattered population of about 1,200.

In 1899-1900, the department constructed a landing pier at this place.

During the last fiscal year, an expenditure of $100 was authorized for slight repairs to the wharf which had been damaged by ice owing to the fact that it was absolutely impossible to procure men to work, a railway being constructed along this shore which took all the available labour, there was nothing done this year, but before winter it is expected that the matter will be attended to.

GULL ISLAND.

This is the local name of a small shore village about four and a half miles south of Liverpool town, and one and a half miles west of Western Head. It has a population of about 150, almost exclusively engaged in the fishing industry. The harbour is partially protected by means of a small partially submerged and rocky islet, but on its southern side, it was absolutely unprotected.

In order to permit these people to pursue their occupation more profitably, the department, during the last fiscal year, constructed a small breakwater at this place. Its total cost was $1,580.96.

This breakwater consists of a stone and cement approach 25 feet long, 24 feet wide on top, and 4 feet high on the average, but, 8 feet high at its outer end; the breakwater proper is built of continuous cribwork, stone-filled, well fendered, fastened, covered and sheathed on the outer end and outside face with 5-inch hewn-sheathing. It is 105 feet in length, 17 feet in width on top, with a batter of 3-inch to the foot and from 9 feet to 12 feet in height.

Spring tides rise here 7 feet, neaps 5 feet.

GRANITE VILLAGE (PORT HEBERT).

Granite village, otherwise known as Port Le Hebert, is a scattered settlement or group of settlements of about 250 people situated along both sides of an inlet, about four miles in length, midway between Liverpool and Lockeport. From the head of

this inlet for miles the country is covered with timber. Mills have operated here for years and adequate shipping facilities have never been afforded the people. They stated that mooring piers situated at the edge of the channel, on the extreme edge of the flats, would meet their requirements.

During the last fiscal year this mooring pier was constructed by the department, at a cost of $782.64.

This pier is 40 feet in length, 40 feet in width and 12 feet in height containing approximately 19,200 cubic feet, thus making the cost slightly over 4 cents per cubic foot. It is constructed of continuous, round-log, stone-filled cribwork, well fendered, covered and fastened.

HALL'S HARBOUR.

Hall's harbour, King's county, is situated on the south side of the Bay of Fundy, about sixty-five miles north-east from Digby gut, twelve miles south-west of Scott's bay, and about twelve miles north-west from Kentville, the county town of King's, and the headquarters of the Dominion Atlantic railway.

The harbour, though small, is one of the best, at H.W., between Scott's bay and Digby gut.

Spring tides rise 39 feet, neaps 33.

The village has a population of some twenty families, and some years ago had a considerable shipping trade, which, however, of late years has dwindled to insignificant proportions.

About the year 1839, the inhabitants, aided by the provincial government built timber retaining walls on both sides of the harbour, which consists of a land locked basin, dry at low water, of about an acre in extent, to permit vessels to lie alongside the public road. About 1844, an addition seawards to the wall, on the west side, was built, in order to check the accumulation of gravel at the mouth of the harbour and to serve as a breakwater. About 1885, an addition of 100 feet in length was built to this breakwater at a cost of $2,000.

In 1884, it was repaired by the department at a cost of $750. On November 6, 1884, the outer block was destroyed by a violent gale, the accompanying heavy seas having also the effect of depositing a bank of gravel which almost entirely obstructed the mouth of the harbour.

Between 1884 and 1891, the only expenditure made upon the work was the sum of $49.97, applied in sheathing the exposed and broken ends. In 1891, the sum of $500 was spent in rebuilding the face of the timber retaining wall on the eastern side of the harbour, 270 feet long. In November, 1893, the sum of $100 was spent in a few much needed repairs to the breakwater on the west side. In 1895-96, the sum of $450.83 was expended in repairs to the breakwater on the east side and the south or shoreward end was raised from 2 to 5 feet, the whole top, 102 feet in length was relaid with new 6-inch flatted spars with new floor stringers. Twenty-six new fenders were placed, a new piece of break was built on the north side of the shoreward end, 30 feet long, 5 feet high and 5 feet wide; the shore end was also filled with ballast and levelled up with gravel.

During the year 1898-99, the sum of $191.68 was expended in repairing the old breakwater, the work done consisting of the close-sheathing of several weak spots on both the outer and inner sides, the renewal of a considerable portion of the floor and the placing of a number of new fenders and mooring posts.

In 1899-1900, the breakwater was extended 120 feet at a cost by contract of $3,200. The new work is 26 feet wide on top, from 14 to 20 feet high, substantially built of round-log stone-filled cribwork of the usual type, battering 1 in 6, and close sheathed vertically on the outer side and battering 1 in 12 on the inner side. The outer end is also close sheathed, and along the seaward face is a break 4 feet 6 inches high.

In 1904-05, the sum of $1,140.50 was expended in beginning the construction of a dam and sluice immediately above the public road bridge, at the head of the little

harbour. The object of this is to afford a means of scouring away the gravel that accumulates alongside the breakwater and obstructs the entrance of schooners.

This work was transferred to the control of the Department of Marine and Fisheries, June 12, 1888.

HAMPTON.

Hamilton, Formerly Chute's Cove, Annapolis county, is situated on the south-east side of the Bay of Fundy, twenty-seven miles north-west of Digby gut and six miles north-west of Bridgetown, an important station on the Dominion Atlantic railway. It has a population of about 200 people, engaged in fishing, farming, and the export of cordwood and timber.

In 1855 and 1856, a small pier, 165 feet long, was built near the western side of the cove, the provincial government contributing $600 to its cost. The site was chosen by commissioners, apparently without professional advice and was objectionable on many accounts. At a cost of $3,000 in 1879, an addition of 121 feet was made by the department, and the older portion of the work was strengthened with the hope of remedying some of the defects of the location.

In 1881, on further examination it was found that the original work had been badly undermined by the sea and that owing to the direction of the pier the shingle was fast shoaling the water on the inside. It was therefore decided to rebuild the structure on another site about half a mile to the eastward, which was carried out at a cost of $2,300. The new pier, as then completed, was 246 feet long, more substantially built and much better located than the old one, it being situated immediately to the westward of a small brook, which serves to keep the schooner berth alongside free from sand. In 1888-89 it having been found that the stream had worked under the foundations, endangering the whole structure, the department expended the sum of $750 in close-piling the inner-face, levelling up the top of the work, which had settled in places, putting in some additional ballast, and effecting general repairs to the covering and break.

In February, 1889, during a heavy freshet, the brook again gave some trouble, tearing away its banks and the gravel beach, and threathening to undermine the breakwater.

In 1890-91, the department spent $31 in repairing the damage and in turning the brook into its original channel. In 1892-93, the breakwater being found not quite long enough to give convenient berth to schooners, the department applied the sum of $1,500 in constructing a block 40 feet long, 27 feet wide on top and 27 feet high on the outer end, and in repairing about 100 feet of the inner end of the old work by raising the inner face, putting in new floor stringers and covering them with new planking, thus putting the work in a thorough state of repair.

In the year 1898-99, the sum of $1,999.79 was expended in the thorough repair of the breakwater. The whole top of the work for the outer 185 feet in length, 20 feet to 26 feet in width, was raised with new work for a height of from 2 feet to 4 feet, rendered necessary by the great and unequal settlement of the work, caused by the scouring action of the little stream that discharges alongside and had made its way beneath it. To prevent a repetition of this action, the inside face of the breakwater was protected for a length of 80 feet with a puddle wall, faced on the outer side with 3-inch plank. The breakwater had a total length of 270 feet a width of from 20 feet to 26 feet, and a height at the outer end of 24 feet where at H.W.O.S.T., there is a depth of 21 feet of water.

In 1902-03, the sum of $207.62 was expended in sheathing with close-piling about 53 feet on the shore end of the east side of the breakwater, to prevent the little stream that issues to the east of the breakwater from undermining the work.

In 1903-04, the sum of $49.99 was expended in renewing a small quantity of close-sheathing that was torn off by ice during the previous winter.

In 1904-05, the sum of $1,198.06 was expended in constructing a small breakwater on the east side of the mouth of the stream for the purpose of preventing the gravel from washing into the mouth of the creek and obstructing the schooner berth, alongside the main breakwater. The new work, which is substantially built of round-log cribwork of the usual type, is 20 feet long, 15 feet wide and 9 feet high at the shore end, and 21 feet wide and 14 feet high at the outer end.

The work was transferred to the control of the Department of Marine and Fisheries on June 12, 1888.

Spring tides rise 32 feet, neaps 18 feet.

HANTSPORT.

Hantsport, Hants county, has a population of about 1,500 and is situated on the left or west bank of the Avon river, here one and three-quarters mile wide, about half way between Windsor and the mouth of the river, where it enters the Basin of Minas. It is an important station on the Dominion Atlantic railway, seven miles from Windsor and fifty-three miles from Halifax.

In 1897-98, the department built a public wharf. It is a strong, well-built structure of stone-filled cribwork, 200 feet long, 32 feet wide, with an 'L' 32 feet long on the outer end, giving a face length of 64 feet where it has a height of 26 feet. At high water there is a depth of 23 feet along the face of the work. At low water the beach is dry.

In 1901-02, the sum of $200 was expended in under-pinning with timber and brush, the south-east corner of the work which had been undermined by the current during ebb spring tides.

In 1904-05, the department expended the sum of $400 in building a freight shed in the angle of the 'L' of the wharf, 25 feet by 15 feet, the construction of a flight of steps at the outer end of the wharf for the greater convenience of passengers, and in raising and widening the approach.

INDIAN HARBOUR.

Indian Harbour, Halifax county, is a small fishing village of some 200 or 300 people, situated twenty-nine miles west of Halifax by public road or about sixteen miles on an air line. It is on the east side of the mouth of St. Margaret's bay, eight miles south of French Village. In 1904-05, the sum of $1,160.50 was expended in constructing a public wharf for the convenience of local trade and fishing. The wharf is constructed of block and span, the blocks being of substantial cribwork, filled with stone and well fendered. It is 20 feet wide with an 'L' at the outer end, giving a face length of 50 feet along which the work is 17 feet high and with a depth of water of 13 feet at H.W.O.S.T. The approach to the wharf consists of an embankment of stone and earth, 150 feet long and from 3 feet to 5 feet high. At the end of the fiscal year the work was not quite completed.

Spring tides rise 6 feet, neaps 5 feet.

IONA.

Iona, Victoria county, is on the northern side of Barra strait, which connects the Great with the Little Bras d'Or lake. It is a station on the Intercolonial railway at the northern end of the Grand Narrows bridge, and a landing place for the steamers of the Bras d'Or Steam Navigation Company.

During the winter months, ice and weather permitting, a steamer carrying mails and passengers, keeps up daily communication between Baddeck and Iona, and as at times, owing to the presence of ice and other causes, the draw in the bridge cannot be opened, and the steamer could not reach the old wharf on the western side of the bridge, during 1901-02-03, a block and span wharf, with creosoted timber substructure, 260 feet in length and extending to 10 feet at low water, was constructed by the department on the eastern side of the bridge and connected with the railway station by a road, 350 feet in length. The inner end of the wharf, for a distance of 138 feet, is 20 feet wide and the outer 122 feet, 30 feet wide.

On April 22, 1904, the ice, forced in by northerly winds, destroyed the outer 30 feet of the superstructure of the outer block, leaving the creosoted substructure uninjured. During 1904-05, the sum of $1,373.99 was expended in re-constructing and strengthening the outer end, and in placing the wharf in condition to carry trains.

On May 20, 1904, a contract was entered into for the construction of an extension to the wharf, 140 feet long and 30 feet wide, consisting of blocks and spans, with creosoted timber substructure, fully ballasted and fendered, close-sheathed on all outer faces, and close-piled with creosoted timber piling on the outer end, and on each side of it for a distance of 16 feet.

The construction of the extension was commenced on September 22, 1904, and satisfactorily completed on December 6, following.

Expenditure during last fiscal year, $12,078.92.

IRISH COVE.

Irish Cove, Cape Breton county, is on the south-east shore of the Great Bras d'Or lake, near the entrance to East bay. The distance to the head of East bay is twenty miles, to St. Peter's canal about twenty-two miles, and across the lake, to Grand Narrows, ten miles.

The wharf at this place, completed in 1892-93, is 160 feet 8 inches long and 20 feet wide, including a shore block 47 feet in length, a central block 20 feet 4 inches in length, and an outer block 57 feet in length with an 'L' 20 feet by 20 feet. It was strongly constructed, fully ballasted, and had the exposed faces of the outer block protected by close-piling. In 1898-99, 1900-01 and 1902-03, part of the close-piling of the outer block (which has been either damaged or destroyed by the teredo), was renewed and some other repairs were effected, including the renewal of 60 lineal feet of guard rail and the replacing of about 20 tons of ballast.

During the fiscal year 1904-05, the sum of $1,000.04 was expended in completing the renewal of the close-piling of outer block; in renewing the close-piling of three sides of the central block; in renewing the guard rail at outer end and western side of outer block and at western side of the central block.

The total expenditure to June 30, 1905, amounted to $5,058.56.

ISLAND POINT.

Island Point, Victoria county, is on the south side of Boulardarie island, eighteen miles from the bridge crossing the Little Bras d'Or at the head of St. Andrew's channel, an arm of the Bras d'Or lake.

A wharf 120 feet in length and 20 feet in width, with an 'L' at the outer end, 20 feet by 21 feet, extending to 11 feet at ordinary lake level, and consisting of blocks and spans, was constructed by the department during 1886-87.

During 1892-93, the sum of $499.48 was expended on repairs to the wharf, which had been damaged by ice.

The ravages of the teredo below and the natural decay of the wood above the water level, caused the work to settle and become dangerous for traffic, and the sum of $550 was voted for repairs, during 1902-03.

When the work was visited to start the repairs, it was found that the inner blocks required to be reconstructed, and that the top of the outer block had been carried away, down to 3 feet below low water, and as the amount voted was entirely too small to reconstruct the whole work the sum of $513.37 was expended in reconstructing the inner blocks and in procuring a portion of the native timber required, to reconstruct the outer block.

The sum of $1,400 was voted for expenditure during 1903-04, for the reconstruction of the outer block with creosoted timber piling. The balance of the native timber required was obtained, but owing to the delay in the delivery of the creosoted timber, and the difficulty of procuring a suitable pile-driver, the work could not be started up to the end of June, 1904, and of the amount voted, the sum of $915.31 only was expended.

During the fiscal year ended June 30, 1905, the sum of $568.92 was expended in the construction of a creosoted timber pile-head 26 feet by 48 feet, and of a span 16 feet long and 20 feet wide, to connect the pile-head with the outer end of the old wharf.

The total expenditure to June 30, 1905, is $4,450.62.

JANVRIN'S ISLAND.

Janvrin's island, Richmond county, is a large island to the westward of Madame island, from which it is separated by Mousselier's passage.

The sum of $2,000 was appropriated for expenditure during 1903-04, towards the construction of a wharf on the island, and as the location had not been selected, an examination had to be made to find the most suitable site for the work. Plan and specification for a native timber block and span wharf on the northern side of Janvrin's harbour, 195 feet in length, 16 feet wide and extending into 8 feet at low water, were prepared, and the necessary materials were contracted for delivery early in the spring of 1904, but as they could not be delivered until after the end of the fiscal year out of the amount voted, the sum of $24.20 only, was expended, and this was for salary and expenses of the foreman while making arrangements for the delivery of the materials.

During 1904-05, the sum of $1,974.82 was expended for materials and construction, but work had to be suspended as the appropriation became exhausted.

On suspension of operations all the cribwork blocks were built up to the required height and ready for the floor-stringers, excepting the outer block, which was up to the level of the upper ballast floor, or within 4 feet of the finished top. The shore abutment was nearly completed and the stringers were placed.

Total expenditure to June 30, 1905, is $1,999.02.

JERSEY COVE.

Jersey or Eel Cove, Victoria county, is situated on the north-eastern end of St. Ann's harbour, in the angle formed between the beach at its entrance and the mainland.

On August 19, 1904, instructions were received to prepare plans and specification for a wharf at Jersey Cove, its ultimate cost not to exceed $4,100, this being the estimated amount as per report submitted to the department on February 13, 1903.

The site surveyed does not suit the majority of the parties interested, and as up to the present time they have not agreed upon a new one, nothing further has been done in the matter up to June 30.

JOGGINS.

Joggins, Cumberland county, is a settlement of some 300 or 400 people, situated on the south-east side of Chinecto channel, the northern arm of the Bay of Fundy. It is about ten miles from the head of Cumberland basin, and fourteen miles from Maccan

station on the Intercolonial Railway with which it is connected by the Joggins Railway.

A sum of $3,000 was appropriated towards the construction of a road leading to wharf, but, up to June 30, 1905, no action had been taken in the matter.

L'ARDOISE.

L'Ardoise, Richmond county, is situated on the eastern side of St. Peter's bay, near its entrance from the Atlantic ocean, and about nine miles east from the southern entrance to St. Peter's canal.

An isolated breakwater, built off Martin's point, in from 5 feet to 10 feet at low water in 1876-77, and almost destroyed in 1883, was re-constructed during 1891-92-93.

The work consists of a timber core, 400 feet long and 20 feet wide, placed over the remains of the original structure, in from 1 foot to 4½ feet at low water, its top standing 1 foot above high water ; the whole being covered with stone, sloping 3 feet to 1 foot on the seaward side and outer end, and 2 feet to 1 foot on the inner side and inner end. The whole surface of the work, above low water mark, was covered with stone of not less than 15 cubic feet capacity each, and the spaces between the stones above the line of high water, were filled in with concrete.

Since the completion of the work, the covering stones on the seaward and outer end slopes, which had been disturbed by the sea, have been replaced, and a concrete wall, 3 feet wide on top, and 4½ feet high, with top flush with the surface of the covering, has been constructed over the outer face and the ends of the cribwork core.

The breakwater averages 17½ feet in height, from the original bottom up to the top of the stone covering, which is 5 feet above high water, and 10 feet above low water springs.

In order to stop the undertow from sweeping into the harbour through the gap, between the inner end of the breakwater and the shore to the eastward of it, a distance of about 1,200 feet, it was decided to close the gap by cribwork.

Plan and specification for the proposed work were prepared and submitted to the department in January, 1902, but the contract for its construction was not entered into until December 29, 1903, in the sum of $24,880.

The work under contract consists of a cribwork breakwater 1,145 feet long and of a stone embankment, 50 feet long, on top. The cribwork, for a distance of 350 feet from the outer end, is to be 20 feet wide on top and protected by a stone talus on each side; for a distance of 795 feet, it is to be 16 feet wide on top and protected by a stone talus, on the seaward side. The stone embankment is between the outer end of the cribwork and the old breakwater, and is to be constructed with large quarried stone, sloping 3 to 1 on the outer, and 2 to 1 on the inner side.

The work under contract was commenced on July 1, 1904, at the end of the fiscal year the cribwork and the stone embankment were completed and the stone talus was about half placed.

Expenditure during last fiscal year, $18,853.

P.S.—The work was finally completed and accepted on August 12, 1905.

LARRY'S RIVER.

Larry's River, Guysborough county, is at the western extremity of Tor bay, on the southern or Atlantic coast of Nova Scotia, twenty-four miles to the westward of Canso harbour.

The harbour, a channel through mud flats improved by dredging, was formerly protected from the eastward by a beach and bar of shingle. Since 1896, the point of the beach at the northern extremity of the bar, and the bar itself, have been lowered and carried inward toward the channel.

In order to restore the shelter formerly afforded by the beach and bar, a contract was entered into on September 22, 1902, for the construction of a breakwater, for the sum of $15,840.

The work under contract consisted of two sections of stone embankment, respectively 125 feet and 379 feet in length, each 14 feet in width at the level of 2 feet above high water and 6 feet in average height, and a central section of cribwork 500 feet in length, 14 feet in width on top and 11½ feet in average height, protected on the seaward side by close-fendering and by a talus of stone sloping 2 to 1 from high water. The embankment and cribwork to be finished at a height of 4 feet above extreme high water. Spring tides rise 6½ feet.

In 1902-03, very little work was performed, operations not having been commenced till June 22. In 1903-04, the work was completed with the exception of placing 350 cubic yards of stone in the talus.

The work under contract was completed July 16, 1903, and during the fiscal year 1904-05, the sum of $1,207.52 was expended in procuring all the materials, with the exception of floor-stringers, required in the construction of a proposed spur on the south-western side and near the outer end of the breakwater, 125 feet in length, to consist of 20 feet of stone embankment and 105 feet of cribwork fully ballasted, close-fendered on the seaward side and around the outer end.

The total expenditure during the last fiscal year amounted to $3,382.52.

LOCKEPORT.

Lockeport is situate on the Atlantic coast about 14 miles south-east of Shelburne and has a population of about 860 people. It has been and is one of the most important centres of the fishing industry on the south coast of Nova Scotia.

During the year 1898-99, the dredge *Canada* performed a large amount of work in this harbour, it was observed that owing to the drifting of sand through the passage between the mainland and a small island, known as Cranberry island, that the channel was filling up and this sand threatened, in a short time, to destroy the usefulness of the centre harbour. In order, therefore, to serve the business interests located in this town, it was considered necessary that this passage, through which the sand drifted, should be closed. In order to do this, the department decided to construct a breakwater across this passage, and during the year 1899-1900, the sum of $2,948.98 was expended upon this work. In 1900-01, the sum of $985.06 was expended in completing it, and in 1901-02 the sum of $299.64 was expended in making necessary repairs, where the sand and water had scoured a portion of the work.

Again the sand scoured, and this last fiscal year an additional sum of $959.63 was expended in effecting the necessary repairs. A piece 80 feet in length, 10 feet wide and 9 feet high of the cribwork was rebuilt, a rock-bank 120 feet long, 12 feet wide and 3 feet high, or rather the rock-bank to this height, was rebuilt and a heavy layer of brush, stones, &c., was laid for a width of 7 feet on both sides of 160 feet in length of this work. In both cases repairs were made necessary because of insufficiency of brush. The work has been performed in a workmanlike and substantial manner, and there should be but little further trouble with this work for many years, although shifting sand is one of the most difficult conditions to contend with in a matter of this kind.

The breakwater is 1,046 feet long, 8 feet wide on top and about 12 on the bottom, with an average height of 8 feet. For 910 feet of its length it is constructed of substantial stone-filled, long cribwork, the remaining 136 feet consist of a rock-bank situated along its eastern end. Spring tides rise 7 feet; neaps, 5 feet.

LONG POINT.

Long Point, Craigmore, Inverness county, is on the eastern shore of George's bay, about 15 miles to the southward from Port Hood, and two miles to the northward of the entrance to the Gut of Canso.

The point extends out a distance of about 500 feet from the general coast line, and forms a small cove at its southern side, which being partially sheltered from northerly winds, and having a good landing beach, is resorted to by fishing boats in the vicinity in the prosecution of the fisheries.

For the purpose of improving the landing and for the better protection of fishing boats, the sum of $2,000 was voted for expenditure during 1904-05, towards the construction of a small breakwater off Long Point; and up to June 30, 1905, the sum of $1,830.96 was expended in procuring the materials required for the construction of a breakwater 200 feet long and 20 feet wide, and in placing the bottom of its inner end, for a distance of 70 feet.

LINGAN BEACH.

Lingan, or Bridgeport harbour, Cape Breton county, is at the head of Indian bay on the north-east coast of Cape Breton island, about five miles to the eastward of the entrance to Sydney harbour. A large pond or basin, having a depth of 8 feet at low, or 12 feet at high water, is separated from Indian bay by a beach of sand. The entrance, which forms the harbour, was deepened and straightened by dredging in 1878-80, to improve the facilities for shipping coal from the Lingan mines, since abandoned. It is now crossed by a bridge built by the provincial government for the accommodation of traffic over the beach, between Lingan and Bridgeport.

A work of brush and stone 1,900 feet in length, constructed in 1876-78, afforded efficient protection to the beach up to 1893, but has since been carried away in places over distances aggregating 1,400 feet.

In 1901-02, 1902-03 and 1903-04, the sum of $3,597.54 was expended in reconstructing 1,900 feet of the brush and stone work, in extending it 80 feet, and in constructing a crosswall of brush and stone, 300 feet in length, between it and the bridge.

During the fiscal year 1904-05, the sum of $999.98 was expended in extending the beach protection work 350 feet to the entrance, and in raising it 1 foot 3 inches over 500 feet, and 2 feet over 300 feet of its length.

The total expenditure to June 30, 1905, exclusive of dredging, amounted to $8,575.66.

LITCHFIELD.

Litchfield, Annapolis county, is a fishing and farming settlement with a population (within a radius of about two miles) of about 150 people, situated on the south coast of the Bay of Fundy, ten miles north-east from Digby Gut. In 1904-05, the sum of $3,000 was expended in constructing a public breakwater for the protection of the fishing fleet. The work, which the appropriation did not suffice to completely finish is 170 feet long, from 20 to 25 feet wide and from 8 to 15 feet high, substantially built of round log cribwork, filled with stone and close-sheathed on the seaward face and outer end. The seaward face is provided with a break 4 feet 6 inches high.

LITTLE BROOK.

Little Brook, Digby county, is situated on the thickly settled east shore of St. Mary's bay, Bay of Fundy, two and a half miles from Church Point, 33 miles south from Digby, the county town, and 36 miles north of Yarmouth.

Some years prior to confederation a breakwater was built by the inhabitants aided by the provincial government.

In 1873, four blocks of cribwork in the middle of the work were partially destroyed by a gale, and the sum of $600 from the provincial 'Navigation Securities' was expended in repairs.

In 1891-92, the sum of $100 was expended by the department in repairing the upper portions of the work which were considerably damaged by an exceptionally high tide

in the autumn of 1890. A piece 20 feet square by 5 feet deep, was rebuilt, and 100 tons of additional ballast placed in the work.

This breakwater, which is substantially built of stone-filled cribwork of the usual type, is 400 feet long, 20 to 35 feet wide and 20 feet high at the outer end, where there is an 'L' 40 feet long by 25 feet wide. It is much used during the summer months for the shipment of piling, cordwood, lumber and timber, and small quantities of fish, and the landing of general merchandise and supplies for local trade and consumption. Little or no use is made of it in the winter owing to accumulation of ice. At high water of ordinary spring tides, there is a depth of 15 feet of water at the outer end.

At low water, the sand flats for many hundred feet, beyond the end, are bare.

In 1900-01, the sum of $279.32 was expended in taking down and rebuilding a portion of the outer end, 10 feet wide on top and 20 feet wide at bottom, and in renewing 44 feet in length of the floor with stringers and guards. This work was the repair of damages done by a great storm of March 1, 1900.

In 1904-05, the sum of $2,000.13 was expended in extending the breakwater by a new block 40 feet long, 31 feet wide and from 20 to 30 feet high. Timber was also purchased for renewals and further extension.

Spring tides rise 21 feet; neaps, 17 feet.

LITTLE HARBOUR.

Little Harbour is a straggling settlement whose people are almost entirely employed in the fishing industry. It probably has a population of about 400 people, scattered along about two and a half miles of rough rugged shore. In heavy weather they have but very little protection for their boats and other fishing property; consequently this breakwater was constructed by this department on the eastern side of a small cove or harbour, at the eastern side of what is called Black point, about six miles east of Lockeport.

In 1902-03, the sum of $1,665.11 was expended upon this work; in 1903-04 a further sum of $494.08 was expended, and during the last fiscal year an additional sum of $401.05 was expended making a total of $2,560.24.

The breakwater is now completed and is a very solid and substantial structure. It is 276 feet in length; consisting of a rock-bank approach 73 feet long, 24 feet wide on top and 8 feet high at the outer end, and a continuous, stone-filled, log cribwork piece 203 feet in length, 20 feet wide and 14 feet high at the outer end. The cribwork is fendered for every 10 feet with two fenders 10 inches at the small end, on each side and is filled to the top with good large size stones. Spring tides rise here 7 feet; neaps 5½ feet.

LITTLE JUDIQUE.

Little Judique harbour, Inverness county, is on the east side of St. George's bay, four miles south of Port Hood, and twenty-two miles north of the northern extrance to the Strait of Canso. The entrance, at the southern extremity of a sand beach, is obstructed by a reef of conglomerate rock, over which there is a depth of only 9 inches, at extreme low water. Spring tides rise 4 feet.

During the fiscal year 1904-05, the sum of $985.63 was expended in constructing a breakwater of cribwork, 70 feet in length, 14 feet in width on top, and 9½ feet in average height, in shoal water on the northern side of the entrance.

LITTLE NARROWS.

Narrows pond, Inverness county, is on the north side of Little Narrows—a contraction of the St. Patrick's channel, an arm of the Great Bras d'Or lake—at a point eight miles from Whycocomagh.

During the fiscal year 1904-05, the sum of $400 was expended in deepening between Narrows pond and Little Narrows to 2 feet at low water in a channel 20 feet in width, and in constructing rough works of brush and stone 230 feet in length, 10 feet in width and from 3 to 4 feet in height on each side.

LIVINGSTONE'S COVE.

Livingstone's Cove, Antigonish county, is on the south-eastern shore of Northumberland strait, about two miles south-west from Cape George.

For the purpose of affording shelter to the fishing boats of the district, and a landing place for steamers and small vessels, a breakwater was commenced by the department in 1899 and completed in September, 1902.

The work, extending out into 9 feet, at low water springs is 312 feet in length, and is approached by a road cut through the clay bank, 105 feet in length. The breakwater is a continuous structure, consisting of a shore abutment with stone retaining walls, 36 feet long and 18 feet wide, on top; of a cribwork block, 80 feet long and 19 feet wide; and of a cribwork extension, 202 feet long and 24 feet wide, with an 'L' on the southern side of the outer end, 24 by 24 feet. The cribwork is constructed with native squared timber, laid with 7-inch openings, is fully ballasted and fendered, and the northern, or seaward face, the outer end and the southern face of the 'L' are sheathed with hardwood.

It having been ascertained that the teredo was attacking the timber, principally on the seaward face, during 1903-04, the sum of $1,794.38 was expended in placing a heavy stone talus along its seaward face, out to within 20 feet of the outer end, extending from high water mark with a slope of about 3 to 1.

During the fiscal year ended June 30, 1905, the sum of $2,211.30 was expended in close-piling with creosoted timber the outer end of the northern face for a distance of 20 feet, the outer end face, the southern end and the back of the 'L' and the southern face of the main structure for a distance of 12 feet from the end. Spring tides rise 4½ feet.

Total expenditure to June 30, 1905, is $18,067.71.

MABOU BRIDGE.

Mabou bridge, Inverness county, crosses Mabou river a little over half a mile above the head of navigation for small vessels.

During the fiscal year 1904-05, the sum of $998.18 was expended in procuring the materials required in the construction of a pile wharf, 121 feet in length and 20 feet in width, and a cribwork approach, 40 by 40 feet, adjoining the approach to the bridge, on the south side of the channel; in driving half the bearing piles of the wharf and in nearly completing the cribwork approach.

MAIN-À-DIEU.

Main-à-Dieu is a small harbour on the eastern coast of Cape Breton island, ten miles north of Louisburg.

A breakwater, 230 feet in length, consisting of a cribwork core, fully ballasted and covered with stone sloping on the seaward side and outer end 3 to 1, and on the inner side 2 to 1, was built on the east side of the harbour in 1891-2.

On August 1, 1904, a contract was entered into, in the sum of $8,925, for the construction of a breakwater on the west side of the harbour, designed to stop the undertow and thus make the anchorage safer, but up to the end of the fiscal year 1904-5 work of construction had not been commenced.

The work under contract is to extend 320 feet in from 6 inches to 2½ feet at extreme low water. It is to be of cribwork, 14 feet in width on top, fully ballasted, close-

fendered on the seaward side and protected, on that side, by a talus of stone, sloping 3 to 1, from high water.

Expenditure during last fiscal year, $296.49.

MALAGASH.

Malagash is situated at the north-east extremity of Cumberland county on the Northumberland straits.

Appropriation of $4,000 was made by parliament for the construction of a wharf at this place; plan and specifications were prepared, but up to June 30, 1905, work had not been commenced.

Expenditure, $10.41.

MALAGAWATCH.

Malagawatch harbour, Inverness county, is situated on the western side of the entrance of West bay, an arm of the Great Bras d'Or lake.

In 1903-04, the sum of $299.99 was expended in opening a channel for boats 1,000 feet in length and from 1 to 1½ feet in depth (at ordinary lake level) between the head of the Malagawatch harbour and River Denis basin, and in constructing on each side at the south end, a protection work, of brush, stone and cribwork, 100 feet in length.

During the fiscal year 1904-05 the sum of $300 was expended in deepening the channel and in constructing protection works at the north end.

MALIGNANT COVE.

Malignant Cove, Antigonish county, is situated on the south-eastern shore of Northumberland strait, about midway between Arisaig and Georgeville, and distant about four miles from each.

The sum of $5,000 was voted for expenditure during 1899-1900, towards opening a channel for boats through the gravel beach into a small pond at the head of the cove, and in the construction of channel protection works. A plan and specification for works extending outward to 7 feet, at low water springs, were prepared, and the sum of $3,583.35 was expended during the year in procuring the materials required for the construction of the channel protection works.

The work proposed included the construction of piers, placed 60 feet apart, on either side of the channel, which was to be excavated to a width of 30 feet in the bottom, and to a depth of 2 feet below low water. The piers extending 248 feet inwards, through the beach, from low water outside, to be 10 feet wide on top, and founded at low water; those extending from low water outwards, to be 16 feet wide for a distance of 60 feet, and 22 feet wide for a distance of 30 feet. All cribwork was to be built of round native timber, laid open-faced, fully ballasted, and close-sheathed at the ends and on the channel faces, the sheathing on the channel faces of the work through the beach to be driven into the beach to a depth of 4 feet below low water mark.

In 1900-01, the sum of $6,123.64 was expended in the construction of the outer piers, each 90 feet in length, and of a portion of the inner pier, on the eastern side of the channel, 188 feet in length.

During 1901-02, the work proposed was completed, and a cribwork extension to the western inner pier, 60 feet long and 10 feet wide, was constructed to prevent the re-opening of the channel through the beach; the expenditure incurred amounted to $2,464.85.

In the year 1902-03, the inner end of the western pier, which for a distance of 70 feet was built lower than the outer portion, was raised to the same level, a height of 2 feet, and planked over; beach protection works, consisting of a cribwork block 40 feet long, 12 feet wide, and averaging 10 feet in height, and of an extension of piles, brush and stone 50 feet long, were constructed on the eastern side of the eastern pier, to pre-

vent the sea from washing over the beach and carrying sand into the channel, between the piers. The amount expended during the year was $799.94.

During the fiscal year ended June 30, 1904, the sum of $1,099.07 was expended in close-piling the outer ends of the piers, and their faces for a distance of 20 feet from the ends, with hardwood piling; in replacing ballast washed out of ends of piers and in extending the beach protection work on the eastern side of the eastern pier for a distance of 40 feet with cribwork.

The amount voted for expenditure during 1904-05, viz.: $2,800, was intended for close-piling, with creosoted timber, the outer ends of the channel piers, which had been weakened by the teredo. The necessary materials were procured, but before the delivery of the creosoted timber, it was found necessary to extend the beach protection work on the eastern side of the eastern pier, at a cost of about $500, and the remaining balance of the appropriation proved insufficient to drive all the piles as intended. The faces of the piers were prepared to receive the piles, by placing three walings on them, and of the 120 piles to be driven, 35 were placed and secured on the eastern face and outer end of the eastern pier. The expenditure amounted to $2,813.95.

Total expenditure on this work up to June 30, 1905, is $17,194.80.

MARGAREE HARBOUR.

Margaree harbour, at the mouth of Margaree river, Inverness county, is on the west coast of Cape Breton island, about thirty miles north-east of Port Hood. It has a narrow intricate channel through which the tide runs at the rate of four knots and its entrance is obstructed by a bar of shifting sand, over which there is, at times, a depth of only 5 feet at extreme low water.

Expenditures have been made by the department in the construction and maintenance of channel protection and improvement works on the west side of the entrance, and in the construction of beach protection work on the east side.

The works on the west side include works built by the provincial government and extended by the department, and works of improvement undertaken in 1900-01.

The old provincial government works (reconstructed by the department) extended 400 feet from the shore, across what was originally a false channel, to a large rock opposite the inner entrance, and thence, at right angles, to the edge of the channel.

The work built by the department extends from the north side of the outer provincial government works outward, along the west side of the channel 595 feet. It is in four sections : 85 feet (built in 1876), 130 feet (built in 1879), 200 feet (built in 1890), and 180 feet (built in 1899), respectively 18, 16, 18 and 20 feet in width on top, and 15, 14, 12 and 16 feet in height. Each section is of round timber, open-faced and fully ballasted and close-fendered at the sides and outer ends. The top of the covering is from 4 feet 4 inches to 5 feet above extreme high water. The depth, at extreme low water, along the channel face, originally varied from 7 to 2½ feet. Spring tides rise 4 feet.

The improvements undertaken in 1900-01, but not completed, were the deepening along the channel face of the extension to 8 feet at low water, over a distance of 200 feet; and the construction of a shear-dam within the entrance, 180 feet in length, including 25 feet of brush and stone work 11 feet wide on top, 100 feet of pile and brush work 10 feet wide, and 55 feet of cribwork 22 feet wide founded on brush work in from 1 foot 3 inches to 9 feet 9 inches at extreme low water. During the year 1900-01, the sum of $3,695.30 was expended, $400 in repairing the channel face of the outer provincial government work; $1,796 in procuring materials and constructing the brush and stone work, the pile and brush work, and the substructure of the cribwork of the shear-dam; and $1,499.30 in about one-half of the rock excavation required to give 8 feet at low water, along the channel face of the extension.

In 1901-02, the sum of $3,065.57 was expended, $995.78 in completing the shear-dam, and $2,069.79 in continuing the submarine rock excavation.

Of the $500 appropriated for 1902-03, the sum of $482.32 was expended ; $219.41 in completing the shear-dam; $61.82 in continuing the channel face rock excavation ; and $201.09 in repairing and improving the channel protection works.

In 1903-04, the sum of $799.94 was expended in continuing the channel face rock excavation undertaken in 1900-01.

Of the amount appropriated for 1904-05, the sum of $999.64 was expended ; $969.74 in August and September in continuing the submarine rock excavation along the channel face of the pier in progress in 1900-01, 1901-2 and 1903-4, and $29.90 in September and October in re-ballasting some face chambers at the outer end of the pier. An additional sum of $248.32 was expended in November and December, 1904, and April, 1905, in re-ballasting and repairing the covering at the outer end, and over a distance of 45 feet near the centre of the pier.

The total expenditure to June 30, 1905, including $3,378 expended in beach protection works (east side) and a refund of $274.87 to the provincial government, is $30,075.66.

MARGARETVILLE.

Margaretville, Annapolis county, is the most important village on the south coast of the Bay of Fundy between Digby gut and Scott's bay; it is forty-two miles north-east from the former, thirty-six miles south-west from the latter, and nine miles north from Middleton, an important station on the Dominion Atlantic railway. It has a population of about 500 people engaged in fishing and farming.

A pier was begun in 1837, by the provincial government and subsequently extended to a length of 471 feet. The work was taken over by the Public Works Department in 1871, since which time it has had frequent renewals and repairs. In December, 1885, the pier was severely damaged by a storm, a breach nearly 150 feet long being made clear through it, besides receiving other injuries. The Margaretville Pier Company transferred their title to the pier to the government on August 3, 1886. In 1886-87, the above described damage was made good. In October, 1890, a severe gale made a breach of 117 feet in the outer portion of the work, besides doing other damage. In March, 1894, the remaining block, 86 feet in length seawards from the 117 foot gap, was totally destroyed. In 1897-99 the outer block was rebuilt. This new block, which is substantially built of round-log cribwork, close-sheathed on the seaward face and outer end, is 185 feet long, 42 feet wide and from 22 to 23 feet high. In 1900-01, the sum of $500 was expended in renewing the floor on the shoreward end of the work and in other miscellaneous repairs.

In 1902-03, the sum of $768.21 was expended in sheathing the seaward face of the breakwater for a length of 155 feet on the shore end, and in removing gravel from the eastern or land side to improve the schooner berth. Also the sum of $1,550.50 was expended in constructing a new breakwater 250 feet to the eastward of the main work. The new breakwater is 110 feet long, 16 feet wide and 7 feet high at the shore end, 25 feet wide and 16½ feet high at the outer end. The work is substantially built of round-log cribwork, well fendered, bolted and filled with ballast.

In 1903-04, the sum of $500 was expended in building a short piece on the shore end of the main or west breakwater, 14 feet long, 25 feet wide and 8 feet high, also in constructing a small inner block on the east side of the shore end 22 feet long, 7 feet wide and 8 feet high. A few petty and miscellaneous repairs were made to the flooring of the breakwater.

In 1904-05, the sum of $1,986.06 was expended in extending the eastern breakwater. The new block is 90 feet long, 27 to 30 feet wide and when completed, will be 17 feet high at the inner and 26 feet high at the outer end. At the end of the fiscal year the new work was built to within 7 feet of its finished height. The sum of $600 was also expended in sheathing a portion of the outer end of the breakwater with creosoted 6-inch planks, as a protection against the ravages of the limnoria.

Spring tides rise about 30 feet.

MCKAY'S POINT.

McKay's Point, Victoria county, is on the western side of the entrance into St. Patrick's channel, an arm of the Bras d'Or lake, and about two and a half miles, by water, from Baddeck, the shiretown of the county.

The steamer *Blue Hill*, carrying mails, freight and passengers, makes, during the season of navigation, two return trips daily between Baddeck and Iona station, on the Intercolonial railway, and as McKay's Point is on her course, in order to place the inhabitants of the district in direct communication with these places, on April 30, 1904, a contract was entered into, in the sum of $5,442 for the construction of a wharf, extending to 12 feet at low water.

The work was commenced on September 15, and was completed on December 2, following.

The wharf is a block and span structure, 206 feet in length and 20 feet wide, with an 'L' on the western side of the outer end, 20 by 20 feet, and is composed of a shore abutment 28 feet long; of four cribwork blocks, 17 feet long; and of an outer block 20 by 40 feet, with openings between them, 18 feet long. The blocks are constructed of round timber, laid open-faced and creosoted to high water, lake level, fully ballasted and fendered. The outer faces of the outer block are close-sheathed, as a protection against ice.

Expenditure during last fiscal year, $5,637.30.

MCNAIR'S COVE.

McNair's Cove, Antigonish county, is on the west side of St. George's bay, about two miles to the southward of Cape George.

A breakwater, 400 feet in length and 20 feet in width, was built on the north side of the cove during 1872-73-74, and in 1878, a length of 20 feet was added thereto. In 1879, the work was carried away by drift ice to within 100 feet of the shore end, down to from 3 to 6 feet below low water.

During the summer of 1883, 70 feet of the shore end was rebuilt, and during the winter of 1884, the work was extended 94 feet. In April, 1884, the 94 feet extension was badly damaged by drift ice, and was subsequently carried away.

During 1886-87-88, the bottom of the damaged work was dredged out, and a work 160 feet in length, 34 feet wide on top, with a sloping face on the seaward side, was constructed ; on its completion the total length of the breakwater was 330 feet.

The work was constructed entirely of native timber, and as it became much weakened by the action of the teredo, during 1890-91-92-93-94, the outer end, and on each side of it for a distance of 20 feet, was protected by creosoted timber close-piling, and its seaward face, by a talus of quarried stone.

During the years from 1897 to 1901, the timber wall under the sloping face, which was destroyed by the teredo, was reconstructed down to low water and close-sheated with hardwood timber, the stone talus was raised up to the top of the close-sheathing, and the work was re-ballasted and re-covered where necessary. Further, the mouth of a small brook, at the head of the cove, which was continually shifting to the detriment of the boat landing, was made permanent by the construction of a shear dam of brush and stone.

During 1901-02, the sum of $1,197.17 was expended in placing 80 cubic yards of very large stone on the talus, and in procuring the materials required for the widening, and renewing the top of the inner end of the work, which was built in 1872, and was only 20 feet wide.

In the year 1902-03, the amount of $1,094.58 was expended in reconstructing the top of the inner end of the work, and in widening it, for a distance of 120 feet, and to a width of 30 feet, the materials for which were obtained in the previous year; and in placing about 85 cubic yards of large stone on the talus, along the seaward face of the work.

The sum of $6,000 was voted for expenditure during 1903-04, towards the construction of a new end and 'L' with creosoted timber substructure, 32 feet wide and 80 feet in length, but owing to delay in the delivery of the creosoted timber, up to June 30, 1904, the work of construction had not been commenced. Out of the amount voted, however, the sum of $4,737.72 was expended for materials.

The sum of $5,221.09 was expended during 1904-05, in the construction of the extension, and in the renewal of floor-stringers, covering and cap on the outer end of the old work, for a distance of 50 feet.

The extension is 80 feet long and 32 feet wide, and is constructed of round timber, laid open-faced, with ties of round timber, creosoted to half tide, is fully ballasted and fendered, and is protected on all seaward faces with close-sheathing.

Spring tides rise 4 feet.

Total expenditure to June 30, 1905, is $78,316.13.

MELBOURNE.

Melbourne, Yarmouth county, is a settlement of some twenty or thirty families, engaged in fishing and farming, situated on the east side of the estuary of the Chebogue river, about eight miles N.N.E. from the town of Yarmouth.

In 1903-04, the department expended the sum of $715.12 in constructing a block-and-span wharf, 100 feet long and 25 feet wide, comprising three blocks of substantially built cribwork, each 25 feet wide, 9 feet long and from 12 to 15 feet high. Two spans of 12 feet each and an approach of earth and gravel, walled up with large stone on either side.

In 1904-05, the sum of $25.38 was expended in placing a crane on the outer end of the wharf for the purpose of aiding the unloading of sea manure, &c., from boats.

Spring tides rise about 12 feet; neaps, about 10 feet.

METEGHAN.

Meteghan, Digby county, is situated on the south side of St. Mary's bay, twenty-five miles north of Yarmouth, twenty miles south of Weymouth, two and a half miles from Meteghan river, forty miles from Digby, the county town. The nearest railway station on the Dominion Atlantic railway, which lies approximately parallel from the coast and has its terminus at Yarmouth, is about seven miles distant. The whole coast of St. Mary's bay, from Digby to Yarmouth, is thickly settled, and is, in fact, almost one continuous straggling village for the whole distance of sixty-seven miles.

Meteghan, next to Digby and Yarmouth, is the largest and most important settlement on the bay shore, having a population of 1,000 people engaged in farming, fishing, lumbering and general trade.

The harbour works consist of a breakwater and landing pier, built of cribwork between 1857 and 1860, by the provincial government and the inhabitants. The pier is about 300 feet long and 20 feet wide; the breakwater 20 to 26 feet wide, runs out a distance of 925 feet from the shore, and has a return or 'L' of 85 feet at the outer end, which is 24 feet wide and 30 feet high, standing in from 25 to 27 feet depth at H.W. O.S.T.

In 1875, at which date the work appears to have been taken over by the department, the breakwater was extended and repaired.

In 1878, an additional length of 100 feet was built with a portion of the 'L' at the outer end at a cost of $3,000 and in 1881, the sum of $2,250 was expended in still further extending the structure by building an additional length of 50 feet on the 'L.' In 1882-83, the sum of $500 was expended in re-ballasting and close-piling portions of the work and in miscellaneous repairs. In 1883-84, $32 was expended in securing some of the fenders and a portion of the flooring at the outer end. In 1884-85, the damage caused by a severe gale of the previous November was made good at a cost of $96.64 ; a

breach 25 feet long and from 4 to 6 feet deep was closed with solid work; 40 feet of new break was added and some new ballast put in to replace that washed out. In 1887-88, the seaward face of the breakwater was close-sheathed for 700 feet in length; 575 feet of the inner face was repaired and sheathed, the whole work levelled up and some minor repairs executed; the expenditure in this year was $1,447.33, which in the departmental report for the year, is given as a refund to the provincial government on account of moneys expended by them between 1867 and 1879. In 1892-93, the department expended the sum of $299.72 in making slight repairs to the breakwater and in temporary repairs to the landing there. In 1893-94, the sum of $2,627.54 was expended in making thorough repairs to the landing pier and wharf, the work done consisting of rebuilding and face fendering the outer block, 50 feet in length, building a new top and back 8 feet thick to the next length of 16 feet and thoroughly refendering and capping the remainder of the work, a length of 260 feet.

In 1897-98, the sum of $3,141.99, was expended in constructing a re-enforcing block along the whole length of the outer face of the 'L' of the main breakwater. This work, which was rendered necessary by the eating away of the bottom timbers by the limnoria, and the consequent settlement of the breakwater, is 100 feet long, 12 feet wide and 4 feet high. The upper portion of the 'L' was also built 35 feet wide, and 4 feet high, which restored it to the height of the present work. The new work is well and substantially built of round-log cribwork, well fendered, ballasted and close-sheathed on all exterior faces. In 1898-99, the sum of $1,093.20 was expended in renewing a length of 120 feet by 8 to 10 feet in height, and by 8 to 10 feet in width of the lower portion of the outward end of the seaward face of the breakwater, which had been eaten away by the limnoria; the work close-sheathed for the same distance and for 40 feet on the inner side; about 10 feet in length of the flooring was renewed; a breach 30 feet long on the seaward side, adjacent shoreward to the 120 feet before mentioned was also closed up.

In the fiscal year 1899-1900, the sum of $2,000 was expended in extensive renewals and repairs to the breakwater, the work done consisting of the rebuilding of 100 feet in length of seaward face and 90 feet of the inner or shoreward face, about 8 feet wide from top to bottom of the work, placing top cross-logs all across the breakwater to tie the new portions together and new floor on the portions renewed.

In 1900-01, the sum of $3,499.95 was expended in rebuilding a serious breach made in the work by a severe gale in March, 1900. The new block, which had to be built from the bottom, is 180 feet long, 22 feet wide and from 18 to 22 feet high. In addition to this a length of 222 feet of the top of the breakwater was refloored and partly close-sheathed, the floor having been destroyed by the storm referred to.

In 1901-02, the sum of $3,199.93 was expended in continuing the restoration of the breakwater that had been going on for the last three or four years. The work done consists of a piece 138 feet long, in about the middle of the length of the wharf, being taken down and rebuilt. Of the next 200 feet shorewards, the northern face was taken down and rebuilt 10 feet wide.

In 1902-03, the sum of $2,997.47 was expended in completing the rebuilding of a piece in the middle of the breakwater, 123 feet long, 20 feet wide on top and from 9 to 11 feet high, that had been destroyed by a violent gale in the winter of 1901-02.

In 1903-04, the sum of $2,300 was expended in continuing the reconstruction of the work, carried on during the past two years. The work done this year consists of the taking down and rebuilding of 80 feet in length of the shore end of the work.

In 1904-05, the sum of $2,000 was expended in further restorations; the work done consisting of the completion of the 80 feet block, near the shore that was partially rebuilt last year; the taking down and rebuilding of a further length of 102 feet and on the south side of the extreme shore end, the restoration of a length of 100 feet and the construction of a break to keep the gravel from washing into the berth alongside.

The total expenditure to June 30, 1905, is $40,749.85 including a refund to the provincial government of $1,447.33 in 1887-88.

The work was transferred to the control of the Department of Marine and Fisheries, June 12, 1888.

Spring tides rise 21 feet; neaps, 17 feet.

METEGHAN RIVER.

Meteghan River, Digby county, empties into the Bay of Fundy, at the mouth of St. Mary's bay, almost directly opposite Grand Passage between Long island and Brier island. The village at the mouth of the river is twenty miles south of Weymouth, twenty-eight miles north of Yarmouth and two and a half miles north of Meteghan or Meteghan Cove. The population of the village is about 400 people engaged in farming, fishing, lumbering and general trade. The nearest railway station, on the Dominion Atlantic railway, which runs parallel with the bay shore, is about four miles from the village. On the river, which is about eighteen miles long, are some twenty saw mills, most of which send lumber down to the mouth of the river for export to the West Indies and the United States, the total amount of the output aggregating over a million feet b.m. annually. The works here, which were built some years before confederation, presumably at the joint expense of the provincial government and the inhabitants, consist of two breakwaters, one on either side of the river mouth, and inclosing an area of about three acres, in which, at H.W.O.S.T., is a depth of 10 to 15 feet giving ample berth accommodation and complete shelter to a large number of coasting and fishing vessels.

The north breakwater is about 400 feet long, 25 feet wide and 13 feet high at the outer end. Both breakwaters are built of stone-filled cribwork of the usual type. When the work came under the charge of the department, the older portions were much decayed, and extensive repairs were needed, which were made in 1873, at a cost of $4,500. In 1881-82, the sum of $2,000 was expended in rebuilding and repairing parts of both breakwaters. In 1882-83, the sum of $3,000 was expended in close-piling and extending the south breakwater a length of 80 feet, in general repairs to the north breakwater, and in removing from the dock a large quantity of rocks and boulders which were used as ballast in the new work. In 1890-91, $265.19 was expended in removing from the channel, near the shore end of the work, more rocks and boulders, that interfered with the keels of vessels lying alongside; slight repairs were also made under the same appropriation to both breakwaters. In 1898-99, the sum of $4,110.76 was expended in extensive renewals to the shore end of the south breakwater; the work taken down and rebuilt was 400 feet long, with an average width of 29 feet and an average height of 19 feet. This length was newly close-sheathed, and on the shoreward side of the same portion a new break was built, 276 feet long and 6 feet high. In the fiscal year 1899-1900, the sum of $4,199.98 was expended in continuing the work of restoration of the main breakwater, a length of 216 feet of the shore end of the work, adjoining outwardly the portion of the work renewed the previous year, was taken down and rebuilt.

In 1900-01, the sum of $8,848.55 was expended in continuing the restoration of this work begun in 1898-99, and in removing gravel from the bottom of the stream between the two breakwaters; 184 feet in length was taken down and rebuilt from the bottom, an average width of 27 feet and from 18 to 19½ feet high. The next 213 feet shorewards rebuilt the previous year, was new floored, including stringers, caps and planks.

In 1901-02, the sum of $3,999.99 was expended in continuing the work of restoration begun in 1898-99. The outer 113 feet of the work was rebuilt practically entire. In order to straighten the outer block of the work, it was widened 24 feet at the outer end, the new block tapering to nothing 83 feet shorewards from the outer end; 83 feet in length also of the outer end of the work was close-piled on the north side to protect it against scour by the river which issues at this side. A considerable quantity of gravel was also removed from the river channel to improve the approach to the wharfs.

In 1902-03, the sum of $942.41 was expended in completing repairs and renewals to the breakwater in progress during the past two seasons. The work done included the renewal of the upper portion of the outer end of the breakwater and in deepening the river channel alongside the outer end of the work.

In 1903-04, the sum of $300 was expended in protecting with close-piling a length of 73 feet on the eastern side of the breakwater that was undermined by ice and waves during the previous winter.

In 1904-05, the sum of $333.16 was expended in close-piling a portion of the shoreward face of the breakwater to protect it from scour.

The total expenditure to June 30, 1905, is $37,730.73.

This work was transferred to the control of the Marine and Fisheries Department on June 12, 1888.

Spring tides rise 21 feet; neaps, 17 feet.

MIDDLE EAST PUBNICO.

Middle East Pubnico, Yarmouth county, is a thrifty settlement of some 400 or 500 people engaged in fishing and farming, situated on the east side of Pubnico harbour, thirty-two miles south from the town of Yarmouth.

In 1904-05, the sum of $3,531.67 was expended in constructing a public wharf of pile-work, 250 feet long, 25 feet wide with an 'L' on the outer end, giving a face length of 50 feet and a height of 16 feet. At H.W.O.S.T., the face of the work carries a depth of about 13 feet of water.

Spring tides side about 14 feet.

MIDDLE RIVER.

Middle river, Victoria county, is a large stream emptying into Indian bay, on the northern shore of St. Patrick's channel, an arm of the Little Bras d'Or lake.

About five miles from its mouth, the river flows through alluvial lands, easily acted upon by the strong currents during freshets, and in consequence a large area of valuable land has been destroyed.

During 1903-04, the sum of $1,405.35 was expended in procuring the materials required for the construction of a shear dam, 600 feet long and 15 feet wide, and built with piles, brush and stone, sheathed on the outside, for the purpose of diverting the stream into an old river bed, and to straighten its course. Besides procuring the necesary materials, about 200 feet of the dam was completed and sheathed on the upper side, during the year, but the interior of the work was only partly filled with the brush and stone.

During the fiscal year ended June 30, 1905, the dam was completed in accordance with plan and specification, and the amount expended is $999.87.

The sheathed dam has proved effective as the river flows now through the old bed, and the danger of its destroying valuable lands has been greatly lessened.

Total expenditure on this work up to June 30, 1905, is $2,405.22.

MONK'S HEAD.

Monk's Head, Antigonish county, is on the southern shore of St. George's bay, between the harbours of Antigonish and Pomquet. A large sheet of water to the westward of Monk's Head, known as Dunn's lake, is separated from the bay by a beach of shingle, and from Antigonish harbour by a neck of marsh land.

In 1894 and 1895, a channel for boats was opened between Dunn's lake and Antigonish harbour, and a high-way bridge was built over its western entrance. Subsequently the bridge and its abutments were re-constructed and protection works of brush, stone and piles were constructed, extending from the bridge inwards, on the northern

side 215 feet and on the southern side 240 feet. The channel is 700 feet in length and has a minimum depth of 1 foot at extreme low water, spring tides rise 4 feet.

During the fiscal year 1904-05, the sum of $179.78 was expended in repairs to the bridge, including removing and replacing the superstructure and reconstructing the faces of the brush and stone abutments.

MORDEN.

Morden, King's county, formerly called French Cross, is a small fishing and farming village of about 150 people, situated on the south shore of the Bay of Fundy, fifty miles north-east of Digby Gut and nine miles north from Alesford station, on the Dominion Atlantic railway.

The pier or breakwater which is the most westerly in King's county, was begun in 1846, at the joint expense of the inhabitants and the provincial government. It is built of round-log cribwork, filled with ballast, close-sheathed on the seaward side and outer end. It is about 365 feet in length, and varies in width from 28 feet at the shore end to 45 feet at the outer end, where it is 26 feet in height. It has had many repairs, renewals and extensions of which the following are the most important.

In 1896-97-98, 120 feet in length of the middle of the work, which was totally destroyed by a violent gale in February and October, 1895, was thoroughly rebuilt. In 1898-99, this gap was completed, other important repairs effected and an accumulation of gravel removed from the inner side of the breakwater. In 1899-1900, 68 feet in length of the buttress on the seaward face of the work was rebuilt from the bottom to the full height of the breakwater.

In November, 1899, a severe gale, accompanied by exceptionally high seas broke over the work and destroyed 75 feet in length of the inner or shoreward side of the breakwater, immediately abreast of the part of the seaward face renewed the previous year. In November, 1900, another severe gale destroyed 22 feet in length of the outer end of the work, which was old and much decayed. In 1900-01, the sum of $3,529.89 was expended in rebuilding the 75 feet of the eastern or shoreward side of the breakwater, which was destroyed in November, 1899, and in beginning the construction of an extension 50 feet long to replace and supplement the 22 foot length of the outer end of the work which was destroyed in November, 1900.

In 1901-02, the sum of $1,495.10 was expended in completing the extension of the breakwater begun the previous year. The new block is 50 feet long, 44 feet wide where it joins the old work and 30 feet at the outer end. It is of uniform height of 26 feet well built of round-log cribwork, sheathed on the seaward face, along which there is a break 6 feet high and filled solid with ballast.

In 1904-05, the sum of $49.99 was expended in removing a quantity of gravel that had washed around the outer end of the breakwater, obstructing the entrance of schooners.

NEIL'S HARBOUR.

Neil's Harbour, Victoria county, is situated on the eastern coast of Cape Breton island, about midway between Ingonish and Aspy bays.

The harbour is at the entrance of a small bay, open to the south and south-east, extending inland about half a mile. It is sheltered from the north and east by Neil's Head, a rocky promontory from 10 to 20 feet above the level of high water springs, but not safe during gales from the south and south-east.

It is a large and important fishing station, and for the purpose of affording protection to the anchorage during south-easterly gales, on May 29, 1901, a contract was entered into for the construction of a breakwater off the southern end of Neil's Head, extending into 17 feet at low water, and the work was completed in a satisfactory manner on May 29, 1903.

The work included a breakwater 226 feet in length, and a road cutting through the bank 79 feet long and 20 feet wide at the bottom. The breakwater, excepting the inner end for a distance of 44 feet, which is of round native timber cribwork, consists of close-faced squared timber work, 20 feet wide for a distance of 114 feet from the inner end, 24 feet wide for a further distance of 80 feet, and 56 feet wide for the remaining 32 feet. The work is very strongly constructed, filled in solid with ballast, and close-sheathed on the seaward faces, the outer end, and on the inner face for a distance of 112 feet from the outer end. The substructure is of creosoted timber, and the seaward side is protected by a stone talus.

During the fiscal year ended June 30, 1905, the sum of $952.79 was expended in the removal of rocks and boulders off the beach inside the breakwater, which interfered with the landing of boats, and in placing the stone removed on the seaward side of the breakwater.

The total expenditure on this work is $18,302.73.

Spring tides rise 4 feet.

NEW CAMPBELLTON.

New Campbellton, Victoria county, is at the head of Kelly's cove, on the northern side of the Great Bras d'Or channel, about one mile from its entrance into the Atlantic ocean.

The cove is about half a mile in width at the mouth, and a quarter of a mile in depth, and has a depth of water of about 20 feet at low water. It is sheltered from all winds, except south-westerly, but as these blow down the channel, they do not cause much inconvenience.

It is the shipping place of the Cape Breton Coal Mining Company, and a considerable amount of coal is shipped from here annually. Owing to the want of a proper and permanent ballast ground, the ballast is often deposited by vessels where most convenient to them, without due regard to the damaging effects and in consequence the depth of water in the cove is said to have been reduced.

The sum of $5,000 was voted for expenditure during 1902-03, towards the construction of a ballast wharf. Plan and specification for a work estimated to cost $11,000 were submitted to the department on December 17, 1902, but the work was not let.

On April 26, 1904, instructions were received to prepare a new plan and specification for the proposed ballast wharf, to include the repairing of the shipping wharf, but owing to other pressing work on hand the plan and specification could not be submitted until March 3, 1905. In the latter part of April, tenders were asked for the construction of the works, but up to the end of the fiscal year, the contract for their execution was not awarded.

Expenditure during last fiscal year, $182.46.

NEWELLTON.

Newellton is situated about two miles north-west of Clark's Harbour, and has a population of about 400.

A wharf was constructed at this place in the fiscal year 1899-1900, with a view of affording adequate facilities for the landing of goods required by the residents, and likewise to accommodate several small steamers, which ply along this coast and which in the past were unable to land passengers and freight without serious discomfort and difficulty. It formerly consisted of a substantial rock-bank approach 108 feet in length, 30 feet in width with a height at the outer end of 8 feet, supplemented by two stone-filled cribwork blocks, each 19 feet in length, separated by a span of 11 feet, and seven pile trestle bents, separated from each other 10 feet centre to centre of pile-heads. The width of the pile and cribwork was 20 feet with a height, at the outer end, of 23

feet. In the fiscal year 1901-02, the sum of $390.59 was expended in repairing and sheathing this work; in 1903-04 an additional sum of $235.21 was expended in close-piling, the sheathing having not been able to stand the heavy seas.

During the last fiscal year the sum of $836.56 was expended in constructing an extension 30 feet long, 40 feet wide, and 25 feet high, at the outer end. It is built of pile trestle-bents, situated 10 feet apart from centre to centre, well fendered, braced, waled and fastened.

Spring tides rise 9 feet; neaps, 6½ feet.

NEWPORT LANDING.

Newport Landing, Hants county, is situated on the east bank of the Avon river, about two miles below the town of Windsor, on an isolated neck of land between the St. Croix river, on the south, and the Kennetcook on the north, the distance by land to Windsor being fourteen miles. The nearest railway station is Brooklyn, on the Midland railway, about six miles distant. It is a rich agricultural district with a population of about 500 people. Most of the trade of the place is carried on with the town of Windsor by water.

In 1904-05, the sum of $1,685.74 was expended in purchasing the necessary timber, and in commencing the construction of a public wharf. The work, as designed, will be 240 feet long, 35 feet wide and at the outer end 20 feet high. Spring tides rise about 40 feet.

NOEL.

Noel, Hants county, has a population of about 500 and is situated on the south shore of Cobequid bay, the extreme eastern arm of the Bay of Fundy. It is thirteen miles west of Maitland, and thirty-two miles north-west of Shubenacadie, the nearest railway station on the Intercolonial railway. It is, at this date, almost exclusively a farming district; the export of lumber and timber, and the building of wooden ships which some years ago were important industries, having practically ceased.

In 1889, a public wharf was built by the department, by day labour. It consists of first, 35 feet in length of brush and stone causeway approach; next a 30-foot block of cribwork, close-faced and filled to the top with gravel and stone; then, 203 feet in length of pile work, 25 feet wide on top, with a double row of close-piling on the exposed or northern side, and an 'L' at the outer end, with a face-piling length of 62 feet. Along the outer face of the 'L,' the work is 24 feet high, having a depth of water at H.W.O.S.T., of 21 feet.

In 1900-01, the sum of $60.15 was expended in renewing the planking of the outer end of the wharf.

In 1904-05, the sum of $1,006.50 was expended in thorough renewals and repairs to the top of the wharf, including floor planking, new stringers and guard timbers, close-piling and fender piles. The work was completed at the close of the fiscal year.

The total expenditure to June 30, 1905, is $4,351.92. The work was transferred to the control of Department of Marine and Fisheries on October 5, 1898.

Spring tides rise 50½ feet; neaps, 43½ feet.

NORTH GUT ST. ANN'S.

North Gut St. Ann's, Victoria county, is the local name of the north-western arm of the head of St. Ann's harbour, a fine basin seven miles in length and two miles wide, situated at the head of St. Ann's bay, on the eastern coast of the island of Cape Breton.

On September 29, 1904, a contract was entered into for the construction of a wharf at Morrison's Point, in the sum of $1,850, and the work was completed on May 31, 1905.

The wharf is a block and span structure, 122½ feet long and 20 feet wide, with an 'L' at the outer end, 20 by 20 feet extending to 7¾ feet at low water; it is constructed entirely of round native timber, laid open-faced, properly ballasted and fendered.

Expenditure during last fiscal year, $1,991.38.

NORTH RIVER.

North River, Victoria county, empties into the northern arm of St. Ann's harbour, a commodious basin seven miles long and about two miles wide, with a great depth of water, at the head of St. Ann's bay, on the eastern coast of Cape Breton island.

The wharf constructed by the department at Seymour's Point, on the northern side of the mouth of North river, during 1898-1899-1900, extends to 9 feet at low water, and consists of a road approach 64 feet long and 16 feet wide; of a block and span work 63 feet long and 20 feet wide; and of a pile-extension 175 feet in length and 20 feet wide, with a return of 20 feet at its outer end.

All the bearing and mooring piles in the pile-work were to be of creosoted timber, excepting the piles in the three inner bents, which being driven above the level of low water and considered safe from the attacks of the teredo, were to be of spruce; but as there was a shortage of creosoted piling in the cargo received, and none could be obtained in the island, the contractors were permitted to substitute native timber piling for three bents at the inner end, and the difference in cost was deducted from the contract price.

An examination of the wharf, made on January 27, 1903, showed that some of the native timber bearing piles had been cut into by the teredo, and that the rest were much weakened and in order to make the wharf safe for traffic until it could be properly repaired, the sum of $45.88 was expended during the fiscal year 1902-03, in placing posts under the pile-caps in the six inner bents of the pile-work, to take the strain off the damaged piles.

The sum of $900 was voted for expenditure during the last fiscal year, in replacing the native timber bearing piles, with creosoted timber, and in renewing the hardwood fender piles. All the necessary materials were obtained and delivered but owing to the difficulty of obtaining a suitable pile-driver the work was not completed by the end of the fiscal year, and out of the amount voted, the sum of $689.68 only, was expended.

During the fiscal year 1904-05, the sum of $313.40 was expended in placing and securing the fender and bearing piles which were procured during 1903-04.

Spring tides rise 6 feet.

The total amount expended on this work to June 30, 1905, is $3,412.15.

OGDEN'S POND.

Ogden's pond, Antigonish county, is on the western shore of St. George's bay, about thirteen miles south from Cape George, and nine miles north from the town of Antigonish. It is a small sheet of water, about 100 acres in extent, separated from the bay by a sand beach of from 130 to 250 feet in width.

For the purpose of rendering the pond, which has a depth of over 10 feet at low water, accessible to boat and small craft, during 1900-01-02, a channel 30 feet wide and 825 feet long, was cut through the beach and the flat inside, down to a depth of about 1½ feet below low water, and a channel protection work, 350 feet in length was constructed on the northern side of the entrance. The work consisted of : a brush and stone embankment 70 feet long and 8 feet wide on top, with side sloping ½ to 1 ; a pile, brush and stone work, 260 feet long and 10 feet wide, close-sheathed on the seaward face ; and of a round timber cribwork block at the outer end 20 by 20 feet, with creosoted timber substructure and close-sheathed on all outer faces.

During the year 1902-03, the sum of $649.87 was expended in repairing and levelling up the outer block, which had settled by undermining of the sandy bottom, and in

protecting its base with brush and stone; also in replacing stone in the pile, brush and stone work, which, being uncovered, had been washed out by the sea.

On November 11, 1902, during a terrific north-west gale, the brush and stone in the work were washed out by the sea, and afterwards, for a distance of 130 feet, the piles were broken off and washed away, leaving the cribwork block at the outer end uninjured.

During 1903-04, the sum of $1,449.87 was expended in replacing the damaged pile-work, for a distance of 130 feet with cribwork, in refilling the balance of the pile-work with brush and stone and in placing a covering over all; and further a quantity of ballast, about 160 cubic yards, was delivered to be used in the protection to the channel through the flat, inside of the beach.

During the fiscal year ended June 30, 1905, the sum of $499.86 has been expended in constructing a pile, brush and stone work 100 feet in length, on the south side, and a brush and stone dam, 80 feet in length, on the north side of the channel through the flat, inside of the beach, for the purpose of confining the tidal streams. The work done has proved very satisfactory but will have to be extended to be a complete success.

Total expenditure up to June 30, 1905, is $6,283.62.

OGILVIES.

Ogilvies, King's county. Ogilvie's breakwater wharf, is situated on the south shore of the Bay of Fundy, fifty-miles east of Digby gut and eleven miles north of Ayles ford, on the Dominion Atlantic railway. Like other ports on the Bay of Fundy shore, in King's county, the trade has greatly declined since the construction of the Dominion Atlantic railway, being now restricted to occasional shipments of cordwood, fish and potatoes.

The work here, which serves both as a wharf and breakwater, was built in the year 1854, at the joint expense of the inhabitants and the provincial government. It is 270 feet long, 38 feet wide on top and about 27 feet high at the outer end, built throughout of the ordinary type of round-log cribwork and close sheathed on the outer end.

In 1884-85-86, the department expended the sum of $3,156.63 in strengthening the outer end by building an entirely new block, 20 feet long, and by taking down and rebuilding the old break for a length of 100 feet; in 1890-91, general repairs were made. In 1891-92, the sum of $500 was spent in repairing and strengthening the shoreward end, 90 feet in length. The face was taken down and rebuilt, being tied into the old work with new cross-ties, and the new work well filled with ballast. In 1897-98, a reenforcing block on the shore end of the east side was built 153 feet long, 10 feet wide and to the full height of the work, to support the breakwater, which was leaning over and threatening to fall. In 1898-99, the sum of $50 was expended in placing about a dozen new fenders to replace those broken and decayed, and in making a few other trifling repairs. In 1900-01, the sum of $500 was expended in repairs to the shore end of the structure, the work done consisting of the rebuilding of the crib breast-work, supporting the road approach on the inner end and shoreward side, the renewal of about 40 feet of the flooring and the placing in position of 40 new hardwood fenders on the seaward face, to replace those worn out by the wash of the gravel.

In 1904-05, the sum of $1,870.30 was expended in widening the shoreward side of the outer end of the breawater. The new work is 114 feet long, 10 feet wide and from 22 to 24 feet high.

At the close of the fiscal year the work was not quite completed.

This work was transferred to the control of the Department of Marine and Fisheries on June 12, 1888.

OYSTER POND.

Oyster Pond, Guysborough county, is one of several large ponds on the north shore of Chedabucto bay which form the only boat harbour between Cape Argos, on the western side of the southern entrance to the strait of Canso, and Guysborough harbour, a distance of fifteen miles.

In 1876, the entrance to the pond was improved by hand dredging and protected on its eastern side by the construction of a breakwater 180 feet in length. In 1884-85, the breakwater was extended 105 feet over a level bottom, dry at extreme low water. The width of the inner work is 14 feet and of the extension 16 feet. In 1896-97, the breakwater was strengthened and repaired.

Up to the time of the completion of the outer portion of the breakwater on the eastern side of the entrance in 1885, the beach on the western side was about 4 feet above high water and formed a natural protection to the best anchorage in the pond. Subsequently it was gradually worn away down to about half tide level and the sand and gravel of which it was composed was carried into the pond, decreasing the depth over the anchorage from 18 to 6 feet at low water.

A contract, entered into in 1897-98, for the construction of a beach protection work on the western side, 400 feet in length, 12 feet in width over 360 feet from the inner end, 16 feet in width over the outer 40 feet, and 8 feet in height, the top being 4 feet above extreme high water, was completd in 1898-99.

During the fiscal year 1904-05, the sum of $449.69 was expended in constructing a 'spur' 40 feet in length, 16 feet in width and 8 feet in height at the outer end of the beach protection work on the west side of the entrance.

The depth, at extreme low water, over the bar obstructing the entrance to the pond, is about 1 foot 6 inches. Spring tides rise 6 feet.

The total expenditure up to June 30, 1905, is $7,559.16.

PARRSBORO.

Parrsboro' is an important town of about 2,800 people, situated on the right bank of the Partridge Island river, which empties into the north side of the Basin of Minas.

This new pier was constructed about four years ago; it consists of a short length of block and span work, 170 feet in length of pile-trestle bents and ends with a very substantial cribwork structure. It is situated at the narrow mouth of the harbour, and consequently, there is a strong current running by it and to it. The open spaces between the pile-trestles allowed this current to sweep through them and rendered it impossible, at a time other than ordinary, for a vessel to lie moored on the inner side of the pier. To ameliorate this condition of affairs, the department in 1903-04, expended the sum of $899.17 in sheathing this portion of the work.

During the last fiscal year the sum of $3,180.15 was expended in constructing an additional pier, at the head of this wharf, exactly the size of the old pier, thus making a double head and permitting vessels of all sizes to lay there. The new block is 37 feet square and 32 feet high.

Spring tides rise 40 feet; neaps, 33 feet.

PEMBROKE.

Pembroke, Hants county, is a small farming and lumbering settlement with a population of about 175, situated on the south shore of Minas basin, nine miles east of Cheverie and three miles west of Walton. The lumbering industry is represented by the annual shipment of about three million feet of deals and from five to ten thousand pieces of piling. As an aid to local business and as a protection to vessels loading and discharging, the department awarded a contract on March 28, 1904, in the sum of $7,970

for the construction of a breakwater. At the close of the fiscal year, 1903-04, the work was half completed, the contractors having earned payments to the extent of $4,400.

In 1904-05, the work was satisfactorily completed. The work, which is entirely detached from the shore, is 200 feet long, 20 feet wide on top and 22 feet high; on the seaward face it is plumb, and sheathed with 6-inch timber, having a break 5 feet high. On the shoreward side it batters 3-inch to the foot. The work was substantially built of round-log cribwork, filled solid with stone.

Spring tides rise about 48 feet; neaps, about 40 feet.

The expenditure during the last fiscal year was $4,193.55.

PETIT DE GRAT.

Petit de Grat inlet, Richmond county, lies between Petit de Grat island and the eastern extremity of Madame island. The main entrance is at the southern end from the Atlantic. The northern entrance, from Rocky bay, is obstructed by outer and inner bars, through which passages for boats, at ordinary low water, were opened by the department between 1897-98.

During 1898-1899-1900-1901, both channels were widened and improved by hand dredging, and a cribwork protection was constructed on the western side of the outer channel.

At the end of June, 1901, the outer channel was about 350 feet long and 25 feet wide, with a depth of 2 feet at low water, while the inner was 285 feet long, 20 feet wide, and with the same depth as the outer channel. The protection work 298 feet in length, and consisting of ordinary round timber cribwork, was fully ballasted, but not covered.

The sum of $1,000 was voted for expenditure during 1901-02, for the reconstruction of a portion of the protection work and for deepening the channels; but as it was found that the beach on the eastern side of the outer channel was moving rapidly to the westward, and had already encroached upon the channel, and the amount available was not sufficient to check the movement, the amount was not expended; and it was decided to abandon the old work and to open a new channel to the eastward of it.

The sum of $2,600 was voted for expenditure during 1902-03 in opening a new channel, and for protecting its eastern side by cribwork. A portion of the materials were procured but as they were delivered only a few days before the closing of the fiscal year, out of the amount voted, the sum of $916.36 only, was expended.

During the fiscal year 1903-04, the sum of $2,197.36 was expended in the cutting of a channel 285 feet in length 20 feet wide in the bottom, and to a depth of 2 feet below low water springs, and in the construction of a protection work on the eastern side of the channel, 200 feet in length, 12 feet wide for a distance of 160 feet, and 20 feet wide for the remaining distance of 40 feet; constructed with round timber, fully ballasted and fendered; the outer end for a distance of 40 feet covered with plank, and the eastern face; the end and the western face, for a distance of 40 feet from the outer end, close-sheathed with hardwood plank.

Out of the amount voted for expenditure during 1904-05, the sum of $928.64 was expended in the construction of an extension to the breakwater, 40 feet in length and 20 feet wide; in deepening the channel some 6 inches, and in the removal of several boulders at its mouth.

Spring tides rise 6 feet.

Total expenditure to June 30, 1905, $9,292.36.

PICKET PIER.

Picket Pier, King's county, is situated on the south side of the mouth of the Habitant river, two miles below the village of Canning and at the lower end of the village

of Canard. It is conveniently placed with regard to a large and thickly populated area of the richest fruit growing and agricultural land in Nova Scotia.

The wharf was begun in 1845, and extended in 1859-60 by the inhabitants aided by the provincial government. Since these dates the department has expended upon it, in renewals and repairs, in 1878, $500; in 1885, $100 and in 1886, $500.

It is 190 feet long, 60 feet wide and at the outer end, which is now about 2 feet below high water O.S.T., it is 20 feet high.

During the year 1896-97, the sum of $498.85 was expended on some very necessary repairs. The work done consisted of the rebuilding of the crib breastwork, along the outer face of the shoreward end for a length of 170 feet that had fallen into decay and threatened to make an island of the main portion of the wharf. Portions of the top of the wharf were also filled up with stone and gravel so that teams could come alongside vessels loading potatoes and other produce.

Since 1897, the work had become so dilapidated as to be practically useless for shipping purposes and the department accordingly expended the sum of $2,309.65 in beginning the construction of a pilework pier over and on top of the ancient cribwork structure.

In 1904-05, the sum of $2,104.62 was expended in continuing the construction of the pile wharf begun last year. The new wharf is 265 feet long, the outer 105 feet being 67 feet wide, the shoreward 85 feet in length 25 feet wide, and the intermediate 75 feet widening from 25 to 67 feet. The outer end is 26 feet high, having 23 feet of water at H.W.O.S.T., and none at L.W. Shorewards of the pilework is an approach of earth and gravel 150 feet long, protected along its whole length on the north side by cribwork 10 feet wide and from 6 to 10 feet high.

At the close of the fiscal year the work was not quite completed.

Spring tides rise about 40 feet.

PICTOU LIGHT BEACH.

The beach forming the southern side of the entrance to Pictou harbour, known as Pictou Light Beach, extends one mile in a northerly direction, inclosing Moodie cove, an inlet nearly dry at low water, except in a central channel. The outer end of the beach, on which stands a lighthouse and keeper's dwelling, is protected by a breastwork of squared timber, 450 feet in length, and by a work of brush and stone extending from side to side of the beach, opposite the southern extremity of the breastwork, and inclosing property under the control of the Department of Marine and Fisheries.

In 1894-95, the sum of $300 was expended in acquiring a title to a portion of the beach 1,520 feet in length, adjoining the property of the Department of Marine and Fisheries.

During 1898-99, a brush and stone work 1,030 feet in length 10 feet wide and 4 feet in height was constructed along the beach to prevent its wearing away by the action of the seas during gales; and two groynes, respectively 65 and 55 feet in length, composed of piles, brush and stone, were built off the brush and stone work for the purpose of gathering the sand.

In 1900-01, the sum of $522.77 was expended in the construction of a third groyne extending 75 feet from the breastwork built by the Department of Marine and Fisheries, 200 feet to the northward of the first groyne at end of breastwork, and in slight repairs to the brush and stone work; but the groyne completed in November was undermined and destroyed during a heavy easterly gale early in December, 1900.

During 1901-02, the sum of $608.28 was expended in raising the brush and stone work, which had settled, for a distance of 710 feet, and as it was found that the beach south of the end of the work was wearing away, the protection work was extended for a distance of 120 feet. The extension consists of brush and stone work, 10 feet wide and of an average height of 4 feet.

Spring tides rise 6 feet.

The work for which the appropriation for 1903-04 was intended, viz.: the reconstruction of the breastwork at the outer end of the beach, was performed during that year by the Department of Marine and Fisheries.

During the fiscal year 1904-05, the sum of $598.83 was expended in reconstructing one of the two groynes, forming part of the protection works constructed by the department, and in repairing the other. The new groyne is 79 feet in length, 9 feet in average width and 9 feet in height, of cribwork, fully ballasted, covered with 3-inch plank and close-fendered at the outer end.

The total expenditure to June 30, 1905, is $4,209.08.

PIPER'S COVE.

Piper's cove, Cape Breton county, is on the north-east end of the Great Bras d'Or lake, between the entrances to East bay and Barra strait.

The cove is open from south to west, the heaviest seas being from the south-west, where they have a rake of twelve miles. At the head of the cove there is a small pond separated from the lake by a beach of sand, about 100 feet wide and 4 feet above high lake level.

As the sum of $1,500, granted for expenditure during 1904-05, for a boat harbour, was entirely too small to construct any work of practical benefit, particularly as the teredo is very destructive in the lakes, and creosoted timber would have to enter largely in the construction of any work here, the amount granted was not expended.

A report with plan, on the construction of a work, such as to meet the wishes of the inhabitants, was submitted in February, 1903.

PLEASANT BAY.

Pleasant Bay, Inverness county, is on the western coast of Cape Breton island, twenty-four miles north of Cheticamp and about midway between that place and Cape St. Lawrence.

During the fiscal year 1904-05, a plan and specification for a wharf estimated to cost $8,000 were prepared. Tenders were invited in March, but up to June 30, a contract had not been signed.

The wharf is to be a continuous cribwork structure, 210 feet in length and from 16 to 20 feet in width, with an 'L' at the outer end, 20 by 20 feet, creosoted to half tide, fully ballasted, and close-sheathed on both sides and at the outer end. The depth at the outer end, at extreme low water, will be 5 feet. Spring tides rise 4 feet.

Expenditure during last fiscal year, $104.65.

PLYMPTON.

Plympton, Digby county, is a fishing and farming village of 200 or 300 people, situated on the east shore and near the head of St. Mary's bay, twelve miles south-west from Digby, and eight miles north-east of Weymouth.

Some years before confederation, the provincial government built a wharf of cribwork, 230 feet long, 35 feet wide and at the outer end 22 feet high, giving at H.W.O. S.T., a depth of 19 feet of water, at a cost of $3,543.97.

In 1874-75, the department extended the work by a block 34 feet square on the outer end, and made some necessary repairs to the rest of the work.

In 1900-01, extensive repairs were made at an expenditure of $1,200. The north side and shoreward end was rebuilt from the bottom a length of 166 feet, a width of 10 feet at the top and about 15 feet at the bottom, by a height of some 4 feet to 17 feet, the outer 66 feet in length was also repaired by placing two new longitudinals on each side, besides a new top piece to the break, and 7 new mooring posts.

In 1904-05, the sum of $1,030.58 was expended in extending the wharf by the construction of a new block, 35 feet long, 35 feet wide and 22 feet high. At the close of the fiscal year the work still lacked 2½ feet of finished height.

The total expenditure to June 30, 1905, is $5,874.55, including a refund of $100 to the provincial government in 1887-88.

This work was transferred to control of the Department of Marine and Fisheries on June 12, 1888.

Spring tides rise 22 feet; neaps, 18 feet.

PORT AU PIQUE.

Port au Pique, Colchester county, is a thriving farming and lumbering settlement of some 400 or 500 people, situated on the north shore of the Basin of Minas, about eight miles west of Great Village and six miles east of Bass River.

Hitherto, in the absence of a wharf, vessels coming to either load or discharge have had to lie aground on the beach, where they could be reached by teams at low water. This was a dangerous practice and resulted in the destruction of several vessels in the course of the last few years. To encourage and develop local trade, and for the convenience of shipping, the department in 1903-04, expended the sum of $543.62 in the purchase and delivery of materials for the purpose of constructing a suitable public wharf of pilework.

In 1904-05, the sum of $1,884.23 was expended in completing the work for which timber was purchased in the previous year. The wharf, which is of pilework, is 150 feet long, 20 feet wide, with an 'L' on the outer end, giving a face length of 55 feet with a height of 26 feet and a depth of water at H.W.O.S.T., of about 22 feet.

Spring tides rise 50½ feet; neaps, 43½ feet.

PORT DUFFERIN.

Port Dufferin, Halifax county, formerly called Salmon River, is a thrifty village of some 500 or 600 people engaged in fishing, lobster-canning and gold mining, situated at the mouth of Salmon river, that empties into the inlet known as Beaver harbour, about eighty-five miles east from Halifax by high road and about half way between Halifax harbour and Canso.

Up to twenty-five or thirty years ago, the harbour, which though small is well sheltered, had a depth of from three to four fathoms up to its extreme head, but after the establishment, about twenty years ago, of the crushing mills of the Dufferin Mining Company, on the stream three miles inland, this depth was gradually reduced by the deposition of the refuse crushing in the form of fine sand, which were thrown into the stream until there were only 3 or 4 feet of water at low water ordinary spring tides.

The trade of the place suffered in consequence to no inconsiderable extent, and even small vessels have difficulty in approaching at low tide the lower of the two private wharfs, in the upper part of the harbour. Sailing packets engaged in coasting make fortnightly calls, and a steamer running between Halifax and Charlottetown, P.E.I., via intermediate ports, calls at the port once, and sometimes twice, each week.

To restore this harbour to its former usefulness, the departmental dredge 'George McKenzie' operated here in 1893-95, deepening the channels and approaches to all wharfs and dredging turning berths, to 13 feet at L.W.O.S.T., at an expense of $4,654.46.

In 1898-99, the sum of $1,646.89 was expended in constructing a public wharf. The work consists first of a stone and earth embankment, 106 feet long, 35 feet wide and of an average height of about 4 feet followed by a block of cribwork 142 feet long and 25 feet wide with an 'L' on the outer end, giving a face length of 56 feet. The height of the wharf is from 8 to 20 feet, it is constructed of cribs 7 feet square, covered by 3-inch plank and filled up to H.W. with stone ballast.

In 1904-05, the sum of $481.16 was expended in putting a new floor on the wharf, including plank, stringers and guard timbers.

PORT GEORGE.

Port George, Annapolis county, is a village of some 400 people situated on the south shore of the Bay of Fundy, thirty-seven miles north-east of Digby gut, forty-two miles south-west of Scott's bay, nine miles south-west from Margaretville and seven miles north-west from Middleton on the Dominion Atlantic railway.

Some years before confederation the provincial government built a western breakwater and an eastern pier or wharf. The breakwater is 440 feet long, from 25 to 35 feet wide on top and at the outer end, where there is about 21 feet of water at H.W.O. S.T., it is about 25 feet high. It is built of round-log stone-filled cribwork, the western or seaward face and outer end being close-sheathed.

The wharf on the eastern side of the little harbour is 205 feet long, 20 feet wide and 18 feet high at the outer end. It is built of round-log cribwork, and the outer end, on which is built a small lighthouse, is close-sheathed. In 1874, the harbour was taken in charge by this department, and in that and the following year, the sum of $7,000 was expended in repairing and refacing the breakwater which was much decayed. In the autumn of 1888, the outer end of the breakwater was destroyed by a severe storm, 165 feet in length being wrecked, and an additional length of 30 feet being much injured. Before repairs could be made, a second storm destroyed the damaged portion leaving 195 feet of the work a complete wreck and rendering the harbour practically useless.

In 1900-01, the destroyed portion of the work was rebuilt by contract.

In April, 1894, an exceptionally severe north-east gale, caused a serious breach in the breakwater at about midway of its length, or immediately shorewards from the new outer block.

The breach was 40 feet long for the full width of the work and about 17 feet high; it was closed in the autumn of the same year.

In 1900-01, the sum of $400 was expended in repairing the eastern breakwater wharf. The outer 30 feet in length was refloored, and the close-sheathing for the same length renewed. New fenders, guard-timbers and mooring posts were also placed. The sum of $1,653.60 was also expended in the construction of a detached breakwater about 200 feet eastward from the main end of the work. The object of this is to break the seas and afford a much needed shelter to schooners lying alongside the breakwater.

In 1901-02, the sum of $2,297.46 was expended in continuing the construction of the detached breakwater begun the previous year. The work thus extended measured 102 feet long, 32 feet high at the lower end and 26 feet at the upper, 20 feet wide at the top. It is plumb on the seaward face and batters 1 in 4 on the back.

In 1902-03, the sum of $2,287.46 was expended in beginning the construction of an extension of 100 feet in length of this work.

In 1903-04, the sum of $5,807.95 was expended in completing the breakwater begun in 1901 and in renewing the top of 200 feet in length of the main breakwater a height of from 3 to 5 feet. The detached breakwater is 200 feet long, 20 feet wide on top and from 17 to 32 feet in height. It is very strongly built of round-log cribwork filled with stone.

In 1904-05, the sum of $199.50 was expended in replacing eight fenders that were torn off and in rebolting six fenders that were loosened by a great storm on January 5, 1905, and also in replacing guard-timber and top longitudinals for a length of 50 feet.

The total expenditure to June 30, 1905, is $37,804.96, including a refund to the provincial government in 1887-88, of $1,076.75.

This work was transferred to the control of the Marine and Fisheries Department on June 12, 1888.

Spring tides rise 30 feet.

PORT GREVILLE.

Port Greville is a village of about 350 people, situated twelve miles west of Parrsboro'. Important shipbuilding and lumbering interests are located here, which are mainly dependent upon the security of the harbour.

The harbour is formed by a high gravel bar, lying parallel to the shore, inside of which the river runs for half mile before reaching low water mark. For the purpose of protecting this harbour which was threatened with destruction, the department in 1874, constructed upon the bar a cribwork wall, 2,200 feet long, 10 feet wide on top with an average height of 7 feet. This was rebuilt in 1902-03 at a cost if $4,071.10.

In the fiscal year 1886-87, the department constructed a breakwater, off the eastern end of this protecting wall, for further protection to the harbour as the gravel was washing into the harbour around the end of the beach protection. It was 250 feet long, 21 feet wide on top, with an average height of 20 feet, sloping on the seaward end of ½ in 1, whilst the seaward end and outer faces were sheathed with 6-inch plank well fastened.

During the fiscal year 1903-04, the sum of $697.59 was expended in repairing this breakwater. During the last fiscal year the sum of $398.84 was expended in completing these repairs. Besides these repairs a contract was let to extend this breakwater a further distance of 150 feet, seaward. The contract price was $11,460. The work was about half completed at the expiration of the fiscal year.

This work was rendered necessary because the gravel was washing around the end of the old breakwater and was gradually filling in the harbour and to permit small steamers calling at Advocate, Spencer's Island, &c., to call here.

Spring tides rise 40 feet and neaps, 34 feet.

Total expenditure during last fiscal year, $6,649.08.

PORT HAWKESBURY.

Port Hawkesbury, Inverness county, is on the eastern side of the Strait of Canso, nearly opposite Port Mulgrave.

The sum of $2,000 was appropriated for expenditure in 1901-02 towards the construction of a wharf. During the year a survey was made and a plan and specification prepared for the reconstruction of a wharf known as the 'long wharf.'

A contract was entered into on September 11, 1902, for the reconstruction of the 'long wharf' for the sum of $9,450.

The work under contract comprised the construction of an abutment 35 feet in length, with end and side walls of stone; the reconstruction from 2 feet above low water of 391½ feet of block and span work, including eight cribwork blocks 31 to 38 feet in length and 22 to 24½ feet in width; and the reconstruction and extension of the 'head' including the removal to 2 feet above low water of parts of two cribwork blocks and the construction of a cribwork and pile-head 73 feet 9 inches in line of work by 112 feet.

Construction was commenced April 23, 1903, and satisfactory progress was made up to June 30, when the new cribwork over all blocks, excepting one, was approaching completion, and when the estimated value of work performed was $2,780.

Operations were continued up to October 19, 1903, when it having been ascertained that ledge rock would prevent the construction of the pilehead, a contract was entered into, for the removal of cribwork and ballast covering the site of a proposed cribwork head, for $2,900.

The work was commenced October 12 and completed November 26, 1903.

Subsequently separate contracts were made for the removal of the outer block of the approach (damaged by ice) for $900, and for the construction of a cribwork 'head' in place of a pile 'head'; the reconstruction of the outer block of the approach, and

the construction of a roadway at the inner end for $6,700. Operations were resumed June 13 and were in progress at the close of the fiscal year.

The expenditure to June 30, 1904, was $10,840.51.

The work under contract, and the additional work referred to as having been undertaken in 1902-03, were completed on September 19, 1904.

On March 27, 1905, an agreement was entered into for the construction of a warehouse 80 feet in length and 29 feet in width at the outer end of the wharf, and for repairing and improving an old warehouse at its inner end, including the fitting up of a waiting room therein, for the sum of $1,955 and on the understanding that payment would be made in 1905-06. The works were put in hand without delay and completed in time for the opening of navigation about May 15.

Expenditure during last fiscal year, $12,517.54.

PORT HOOD PIER.

Port Hood, the shiretown of the County of Inverness, is on the west coast of Cape Breton island, twenty miles north of the northern entrance to the Strait of Canso.

A pier on the east side of the harbour, commenced by the provincial government in 1865, was originally 550 feet in length and 24 feet in width, with an 'L' on the south side of the outer end, 100 feet in length and 25 feet in width. It came under the charge of the federal government in 1871, since which time extensive repairs and renewals have been made, including the construction of a new block, 125 by 25 feet, at the outer end, in 1873; the construction of a block 50 by 32 feet at the south end of the 'L' in 1888-89 ; and the construction of a block 71 by 24 feet at the outer end in 1889-90. The old provincial government work was of square timber, close-faced; the additions and parts reconstructed by the department are of round timber laid open-faced. The piers have been protected on the seaward side, at the outer end, and on the south end and inner side of the 'L,' by close-piling, and on both sides to within 74 feet of the outer end by a stone talus.

In 1902-03, the sum of $199.99 was expended in urgent repairs, including replacing ballast where required and temporary repairs to the covering.

In 1903-04, the sum of $1,500.01 was expended in repairing and strengthening the outer end of the pier. The work performed included: close-piling (inside) and reballasting the face chambers at the outer end and on the seaward side near the outer end ; repairing the covering, and renewing the close-piling at the outer end and on the seaward side in places.

During the fiscal year 1904-05, the sum of $1,799.86 was expended in repairing and strengthening the outer end of the pier. The work performed included ; placing 229 cubic yards of quarried stone in the talus, on the north side; renewing the close-piling of north face, near the outer end and at the outer end where required; renewing floor-stringers, covering and cap-timbers over 150 feet of the approach and in general repairs.

The total expenditure to June 30, 1905, including $916.11 refunded the provincial government, was $63,392.06 and $2,079.58 for dredging.

PORT HOOD HARBOUR.

The harbour of Port Hood is on the west coast of Cape Breton island, about twenty miles to the northward of the northern entrance to the Strait of Canso.

The harbour was formerly a secure one, Smith island, which forms its west side, having been connected with the mainland by a range of sand hills. In 1893, the sea made a breach through this protection; the opening, at first narrow, was enlarged by the tidal currents with increasing rapidity until it was entirely swept away. The harbour is not unsafe during northerly gales, except in a small cove on the east side of Smith island.

In March, 1902, a report was submitted on the closing of the northern entrance in which the estimated cost of work suggested varied from $482,000 to $291,000, according to design and location.

The amount appropriated for 1903-04 ($20,000) was for expenditure by day labour in constructing a portion of a breakwater of brush and stone with stone talus and covering. Operations were commenced in May and were in progress at the close of the fiscal year ended June 30, when the expenditure amounted to $2,958.95. This sum was expended in procuring materials and in constructing a work of brush and stone 28 feet in width on top, at high water level, extending from the mainland 330 feet to 3 feet at extreme low water.

During the fiscal year 1904-05, the sum of $19,942.43 was expended in extending the brush and stone work 470 feet, 800 feet from the mainland, to 6 feet at extreme low water, and in placing a talus, on both sides, and a covering of quarried stone.

Spring tides rise 4 feet.

PORT LATOUR.

Port Latour, Shelburne county, is a fishing and farming settlement, situated twenty-five miles south-west of Shelburne town. Population, 700.

The harbour is about four miles long, north and south, and two miles wide, east and west, with a depth of water of from five to seven fathoms. Spring tides rise 10 feet, neaps 7 feet.

Though the outer harbour is somewhat exposed to the south-east (this being the quarter from which the most destructive and severe gales arise), the inner harbour formerly afforded some measure of shelter and protection to the northward and westward of the sand-flats, lying between Page's island and Swain's point, on which there is from 6 to 8 feet of water at L.W.O.S.T.

Since an unusually heavy storm, some years ago, tore from these flats the thick growth of eel-grass, with which they were covered, the undertow now washes over them. Vessels lying at anchor, awaiting a cargo or favourable wind, are in danger of dragging ashore, and the need of a protected anchorage is therefore unquestioned.

To most effectually meet this requirement, it was necessary to construct a breakwater, starting from Swain's point and running in a north-easterly direction.

During the fiscal year 1898-99, the sum of $3,561.75 was expended; during the next fiscal year the sum of $2,984.10 was expended; in 1902-03, the sum of $1,012.34 was expended; during 1903-04, the sum of $1,097.64, and during the last fiscal year the sum of $2,695.96 making a total expenditure to date of $11,331.79.

The work performed during the last year consists of the extension of the stone work a further distance of 71 feet, with a width of 25 feet on top, and from 30 to 34 feet on the bottom, it being 17½ feet high at the beginning of this year's work and 20 feet at its present outer end.

The work done this last year contains about 1,499 cubic yards at a cost of $1.78½ per cubic yard.

The outside and inside walls of this bank are each 5 feet in thickness, composed of large stones, carefully cemented, whilst the inside, 15 or 18 feet in width, is filled with smaller stones to a height 9 inches below the top, which 9 inches were in turn filled with gravel of good quality. Besides this there is a break of 8 or 10 inches of cut granite, running the entire length of the work along the outside, which is also rip-rapped with from 200 to 300 tons of large boulders.

The work at present affords much local protection and when completed will no doubt afford ample protection for all interests concerned.

PORT LORNE.

Port Lorne, Annapolis county, formerly called Port William or Marshall's Cove, is situated on the Bay of Fundy, thirty-two miles north-east of Digby Gut, and six

miles north west from Paradise station, on the Dominion Atlantic railway. The settlement comprises about 300 people engaged in fishing and farming.

The breakwater was begun in 1835, at the joint expense of the inhabitants and the provincial government, the outlay on the work up to 1867, being $16,000. The first work done by this department was in 1873-74, when the breakwater was extended a length of 67 feet. In 1882-84, the work was further extended a length of 100 feet, width 35 feet and height 25 feet. The new block was built close-faced with square timber both inside and outside, and provided with a break 4 feet high. During the next few years several repairs were made. In 1897-98, a re-enforcing block was built on the seaward face and outer end of the breakwater, 78 feet long, 37 feet high and 13 feet wide, in addition to other important repairs made.

In 1900-01, the sum of $2,186 was expended in important repairs. The work done consists of the building, to the full height of the breakwater, of a portion of buttress on the seaward side, 91 feet long; the rebuilding of 12 feet in length of the top of the main work, immediately shorewards from the new portion of buttress, and the refloor-ing of the greater part of the length of 91 feet abreast of the buttress.

In 1902-03, the sum of $1,198.48 was expended in rebuilding a portion of the shore end of the seaward face of the breakwater, 50 feet long, 15 feet wide and from 6 to 15 feet high, with solid stone-filled cribwork; also in rebuilding a portion of the break on the shore end 33 feet long, 8 feet wide and from 6 to 10 feet high.

In 1904-05, the sum of $999.93 was expended in taking down and rebuilding a portion of the shore end of the breakwater which was very much decayed and in miscellaneous repairs to the rest of the work.

The total expenditure to June, 1905, is $20,339.04 including a refund to the provincial government of $1,589.33 in 1887-88.

The work was transferred to the control of the Department of Marine and Fisheries on June 12, 1889.

Spring tides rise 30 feet.

PORT MAITLAND.

Port Maitland, Yarmouth county, is a prosperous and important fishing and farming village, with a population of about 600, situated on the south-east side of the mouth of the Bay of Fundy, twelve miles north of the county town of Yarmouth.

The harbour works were begun about the year 1859, by the provincial government; they consist of an eastern and western or main breakwater of cribwork. The former is 400 feet long by some 20 feet wide, and the latter 500 feet long, 22 to 25 feet wide, with a return of 54 feet long, 24 feet wide and 27 feet high, along which there is a depth of 19 feet at H.W.O.S.T. These breakwaters or piers inclose between them a snug high water harbour of two and a quarter acres in extent.

In 1873-74, the eastern breakwater was raised and widened for a length of 158 feet on the shore end and an extension of 50 feet in length was built on the outer end of the western breakwater. In 1885-86, the sum of $349.92 was expended in raising the outer end of the eastern breakwater, and in repairing and partly renewing the sheathing of the outer face of the western breakwater. During 1887-88, the western breakwater was repaired, and in the following year, 1888-89, both sides of the breach were closed up, and a number of fender piles were driven along the outer face and exposed corners of the broken work.

On June 24, 1890, a contract was made for rebuilding the destroyed section and repairing the other parts of the work. The seaward face, i.e. 83 feet in length outside the new work, and 100 feet between it and the shore was close-piled; the entire top was rebuilt and new fenders were fitted on the inside face. In 1891-92, the sum of $296.45 was expended in repairing the eastern breakwater. In 1895-96, the sum of $271.71 was expended in the purchase of materials. In 1896-97, the sum of $3,304.79 in extensive repairs and renewals to both works. On the eastern breakwater, which

also serves as a wharf for the landing and loading of general merchandise, coal, lumber, &c., the shoreward 30 feet was rebuilt on the south side, 6 logs high, and on the north side, three logs high, including floor-stringers and covering ; 22 feet in length of the new covering was laid on the outer end, and a number of new fenders were bolted into position. On the western breakwater, a re-enforcing block was built on the south side of the outer end, 97 feet long, 11 feet wide and 12 to 14 feet high, or to a height of about 10 feet below the floor of the work; a re-enforcing block was also begun along the whole length of the 'L' 70 feet in length and from 10 to 12 feet wide. To obviate settlement, due to soft bottom, and the eating away of the bottom logs by the limnoria, it was built on 147 piles, driven to hard bottom and cut off level with the beach. The inner or north side of the shoreward end was also strengthened and rebuilt.

In 1897-98, further repairs and renewals to the breakwaters were made at a cost of $3,600. The re-enforcing block along the 'L' of the western breakwater was completed to the full height of the work, and the inner face of the outer end was renewed. The buttress on the outer side was extended shorewards a lenth of 122 feet. On the end of the eastern breakwater the 'T' was rebuilt 50 feet long, 20 feet wide, and built on 21 piles, driven to hard bottom and cut off level with the beach. Various miscellaneous repairs were also effected.

In 1898-99, under expenditure of $710.35, thorough and extensive repairs to the western breakwater were completed and 60 feet long on the inner face was close-sheathed, the buttress on the seaward side, 140 feet long, was finished and several vacant spaces in the shoreward end were filled with ballast.

In 1899-1900, the re-enforcing buttress on the outer end, seaward face of the breakwater, 96 feet long, 10 to 12 feet wide to the full height of the work, was rebuilt. The lower 12 feet of this work, and the outer end of the work were also sheathed with 4-inch creosoted plank as a protection against the limnoria. The expenditure was $2,246.73.

In 1900-01, a piece of buttress on the seaward side of the breakwater, 90 feet long, 19 to 20 feet high and from 10 to 11 feet wide, adjoining shorewards the piece 96 feet long which was built the previous year, was constructed. The outer face of the new piece of buttress was also sheathed 12 feet high with creosoted 4-inch plank as a protection against the limnoria. The expenditure was $1,017.66.

In 1901-02, the sum of $299.44 was expended in close-sheathing with 5-inch plank a length of 110 feet of the shore end of the seaward face of the breakwater, from which the old sheathing had been stripped away by heavy seas earlier in the year.

In 1903-04, the sum of $1,500 was expended in raising to the full height of the breakwater the buttress on the seaward side for a length of 65 feet and width of 12 feet and height of 14 feet. Also the taking down and rebuilding of an equal length, 65 feet on a height of 8 feet of the main portion of the breakwater that was very much decayed.

In 1904-05, the sum of $1,465.72 was expended in taking down and rebuilding 153 feet in length of the top of the shoreward end of the breakwater, which was much decayed; 80 feet in length of planking was renewed, and a number of fenders broken by ice the previous winter were replaced by new ones. On the north wharf, a few fenders and deck plank and one mooring post were renewed.

The total expenditure to June 30, 1905, is $28,198.31 including a refund of $1,971.66 to the provincial government in 1887-88.

This work was transferred to the control of the Department of Marine and Fisheries on June 22, 1885.

Spring tides rise 18 feet; and neaps, 15 feet.

PORT MOUTON.

Port Mouton proper, is a settlement of about 400, situated ten miles south-west of Liverpool town.

About forty years ago, the provincial government built a wharf at this place. It

was not very strongly constructed and gradually became so shaky and dangerous, that in the early part of 1900 this department constructed a new wharf costing $2,372.49.

The wharf consists of a rock bank approach 56 feet in length, 35 feet wide, and 8 feet high at its outer end, supplemented by five cribs built of round logs and filled with stone ballast, each crib being 28 feet long, 32 feet wide and separated from each other by spans 15 feet long.

During the last fiscal year the sum of $106.27 was expended in raising, grading and effecting slight repairs to the rock-bank approach. This approach was raised 1½ feet by adding small stones with a top course of good coarse gravel; the sides of the bank which were slightly damaged, were also repaired.

Spring tides rise here 7 feet; neaps, 5 feet.

PORTER LAKE.

Porter's Lake, Halifax county, is a long and narrow strip of fresh water, lying nearly north and south, situated about the middle of Halifax county, or about fifteen miles east of the provincial capital. It is about eighteen miles in length from a quarter to a half mile in width, and the water being of good depth for almost its entire length. It is navigable for vessels of about sixty tons, to the extreme head. The normal level of the lake is some two or three inches above high water O.S.T., which on the coast here rise 6 feet, neaps, 5 feet.

Up to about 1873, the outlet, which was directly into the Atlantic through a gravel beach, about 200 feet wide was navigable for schooners drawing 6 feet of water, and a considerable trade was then done on the lake in the export of timber, lumber, cordwood, general farm produce and fish. Since that time the outlet has been gradually and permanently filling up with accumulations of gravel washed in by southerly and easterly storms. In order to maintain the outlet, to prevent the roads along the margin of the lake from being flooded and also to admit fish into the lake, the following small expenditures have been made by the department :—

1881-82	$ 200 00
1884-85	200 00
1889-90	200 00
1892-93	147 00
1897-98	100 00
1898-99	200 00
1899-1900	150 00
1902-03	49 99
1903-04	300 15
1904-05	166 40
	$1,713 54

These expenditures having resulted in but slight temporary relief, and no permanent improvement, the department in 1900-01, expended the sum of $8,262.44 in beginning the construction of a permanent channel through the neck of land 2,400 feet wide, separating the main body of the lake from the extreme head of Three Fathom harbour. In 1901-02, a further sum of $5,987.24 was expended on the permanent outlet. In 1902-03, the sum of $2,455.67 was expended on the permanent, and $49.99 on the temporary (old) outlet.

In 1904-05, the sum of $4,273.67 was expended on the new or permanent outlet and $166.40 on the old outlet.

Total expenditure to June 30, 1905 :—

On permanent outlet	$20,979 02
On temporary outlet	1,713 54
	$22,692 56

SANDY COVE.

Sandy Cove, Digby county, is a thrifty and beautifully situated fishing and farming settlement of some 400 people, situated on Digby Neck, twenty miles south-west of Digby town.

On February 12, 1903, a contract in the sum of $13,000 was awarded by the department for the construction of a breakwater in the cove on the eastern, or Bay of Fundy side of the Neck, with the object of affording some much needed shelter to the fishing fleet.

The work, which was completed early in November, 1904, is 211 feet long, 30 feet wide on top and 31 feet high at the outer end, where, at H.W.O.S.T., there is about 27 feet of water. The work is of solidly built round-log cribwork, the lower portion, up to 5 feet above L.W.O.S.T., being of creosoted timber, to resist the attacks of the limnoria which are prevalent and destructive.

An additional sum of $829.48 was paid the contractor, on account of the settlement of the work requiring additional height of some 5 feet.

Spring tides rise 23 feet; neaps, 19 feet.

Total expenditure during fiscal year of 1904-05, $2,927.48.

SAULNIERVILLE.

Saulnierville, Digby county, with a population of about 250, is situated on the north-east coast of St. Mary's bay, Bay of Fundy, thirty-six miles south-east of Digby, thirty-two miles north of Yarmouth and three miles north of Meteghan river.

Some years before confederation, a breakwater, serving also as a landing wharf, was built by the inhabitants aided by the provincial government. In 1876, the sum of $4,000 of which half was contributed by the department and half by the inhabitants, was expended in making thorough repairs to the work and extending it to a length of 100 feet.

In 1889, further extensive repairs were made at a cost of $1,859.59.

In 1891-92, $17.60 was expended in trifling repairs.

In 1899-1900, the damage done by a severe storm in 1900, was made good. In 1900-01, the sum of $1,999.49 was expended in repairs and extension. The repairs which were to make good the damage done by a great tide and storm of March 1, 1900, consist of the renewal of the outer 60 feet in length. The work was extended a length of 37 feet, it is substantially built of round-log cribwork, close-sheathed on the seaward side and outer end, 33 feet wide and from 20 to 24 feet high.

In 1901-02, the sum of $719.97 was expended in reflooring the shoreward end of the breakwater for a length of 138 feet.

In 1904-05, the sum of $1,999.29 was expended in extending the breakwater by a new block, 31 feet long, 37 feet wide and 23 feet high, some close-sheathing torn off by ice during the previous winter was replaced, and portions of the break were rebuilt.

The total expenditure by the department to June 30, 1905, is $8,522.98, including a refund to the provincial government of $1,926.53 in 1887-88.

Spring tides rise 21 feet; neaps, 18 feet.

At low water the sand flats are bare for several hundred feet beyond the end of the work.

SEASIDE.

Seaside, Inverness county, is on the east side of St. George's bay near the southern entrance to Port Hood harbour and about two miles west from Port Hood, the shire town of Inverness county.

The wharf at this place, undertaken in 1895-96 and completed the following year, is 300 feet in length and 20 feet in width on top, of open-faced cribwork, close-fendered at the outer end and fully ballasted. The substructure is of creosoted timber and the

superstructure of native timber. The depth at the outer end, at extreme low water, is 7 feet. Spring tides rise 4 feet.

About one year after its completion, ballast went out of some of the face chambers at the outer end between the bottom timber and the uneven rock on which the work is founded. Subsequently there was a further loss of ballast, and in the spring of 1904, the work was moved by ice from the south 11 feet out of line, at the outer end, the movement commencing 74 feet in from the outer end.

During the fiscal year 1904-05, the sum of $177 was expended in filling the outer end face-chambers with concrete to low water, and above that level with ordinary ballast.

SCOTT'S BAY.

Scott's Bay, King's county, is on the south side of Minas channel, Bay of Fundy, between Cape Split and Baxter's harbour. The population of the settlement, within a radius of a couple of miles, is about 500.

In 1878-79, the department built a block of cribwork 50 feet long, 30 feet wide and about 20 feet high, connected with the shore by a double row of close-piling, 210 feet long, from the south-east corner of the block; the cribwork was built of close-faced work, well fendered and ballasted. The work was located on the west side of Jess creek, and formed a harbour or shelter for vessels during south-west storms.

As it had no floor, much of the ballast has been removed, presumably for ballasting schooners. Both the block and close-piling are more or less dilapidated, 30 feet in length of the close-piling and the upper 15 feet in height of the block being totally destroyed. The expenditure on this block and the close-pile work by the department from 1867 to 1882 was $3,000.

In 1900-01, the department expended $500 in building two blocks of cribwork, one on either side of the mouth of the creek. The northern block is 115 feet long, 15 feet high and 19 feet wide; also in extending the south breakwater by a block 75 feet long, 10 to 12 feet high and 12 feet wide. Some minor repairs were made to the older portions of the northern breakwater.

In 1903-04, the department expended the sum of $1,342.52 in further improvements. The work done consists of the construction of a new block of cribwork in extension of that built in 1901-02, 57 feet long, 20 feet wide and from 16 to 21 feet high, also to raising to full height and finishing the new block on the south side of the creek begun in 1901-02.

In 1904-05, the sum of $998.84 was expended in constructing a new block of cribwork, 57 feet long, 20 wide and 18 feet high, in extension of the breakwater on the south side of the mouth of the stream; a small cross-block on the shore end of the same work 50 feet long, 10 feet wide and 8 feet high; another a small cross-block on the shore end of the north breakwater 50 feet long, 10 feet wide and 12 feet high, together with fenders and a top course of logs on the portion of new work built last year on the south side of the creek.

Spring tides rise about 48 feet; neaps, 40 feet.

SKINNER'S COVE.

Skinner's Cove, Pictou county, is situated on the western side of Northumberland strait, about four miles east of Cape John, and about twenty miles north-west from the entrance into Pictou harbour. It is a small indentation in the coast line, about 750 feet in depth, with a pond at its head, separated from the sea by a beach of sand, some 250 feet wide and 600 feet in length.

On January 5, 1905, a contract was entered into for the sum of $10,950 for the cutting of a channel through the beach into the pond and for the construction of channel protection works on each side of it.

The works under contract consist of the excavation of a channel, 15 feet wide at the bottom, 425 feet long and 2½ feet deep below low water; the construction of pile, brush and stone protection piers, 304 feet long and 15 feet wide, on each side of the channel, and of round timber cribwork blocks, 40 feet long and 20 feet wide, with creosoted timber substructure at the outer end of the protection works.

The construction of the protection was commenced on May 20, and at the end of the fiscal year, the outer end blocks were completed, excepting the placing of cap and upper fenders and sheathing, and forty piles in the inner work were driven.

Expenditure during last fiscal year, $3,225.14.

SPRY BAY.

Spry Bay, Halifax county, is a thriving fishing and farming settlement of about 1,000 inhabitants, situated about seventy miles east of the city of Halifax and eight miles west of Sheet Harbour. It contains four stores, two lobster packing factories, hotel and telegraph. The harbour is free from ice all the year round. Hitherto, owing to the absence of a suitable landing pier, the weekly steamer has been obliged to tie up at a flimsy and inconvenient landing, which, owing to shallow water, is approached with difficulty.

In 1903-04, the sum of $507.94 was expended in the purchase and delivery of timber preparatory to the construction of a suitable wharf.

In 1904-05, the sum of $1,500 was expended in completing the wharf. The structure is of pile-work 200 feet long by 25 feet wide, having an 'L' on the outer end giving a face length of 55 feet and a depth of water, at L.W.O.S.T., of 11 feet.

Spring tides rise 6 feet; neaps, 5 feet.

SUMMERVILLE.

Summerville, Hants county, is a village of some 400 or 500, situated on the right or east bank of the Avon river, about midway between Windsor, the county town of Hants and the mouth of the river where it empties into the Basin of Minas. It is about four miles south of Cheverie.

The prosperity of the place is chiefly due to ship building, which up to a few years ago was carried on with vigour and success, but since the decline of the industry the inhabitants have turned their attention to farming, to which the district is well adapted, though there is still a good deal of general ship-repairing done in the yards.

The public wharf was built in 1866, by the inhabitants aided by the provincial government, its dimensions being 275 feet long, 29 feet wide and 20 feet high at the outer end. It is constructed of the ordinary round-log cribwork, well fendered and filled with ballast.

In 1886-87, the work having become almost useless for want of renewals and repairs, Messrs. E. Churchill & Sons of Hantsport, who own and operate a small steamer, making semi-weekly (now daily) trips between Avon river and Basin of Minas ports, repaired the outer end and built an extension, about 36 feet long and 25 feet wide, having on the eastern side an inclined landing for the use of the steamer, when lying alongside at low water.

In 1890, the department expended the sum of $3,414.52 in removing and rebuilding the decayed top of the work to a height of 5 feet, besides placing new fenders along the whole length and making general and much needed repairs. The work is now 24 feet high at the outer end with 21 feet of water at H.W.O.S.T. (spring tides rise 48 feet; neaps, 40 feet). In 1897-98, the sum of $100 was spent in a few urgent repairs to the floor.

In 1899-1900, the sum of $602.08 was expended in renewing the whole floor with guards, planking and stringers, besides bolting in position a number of new fenders.

In 1904-05, the sum of $1,532.76 was expended in extending the public wharf by a new block 80 feet long, 25 feet wide and of an average height of 30 feet substantially built of round-log cribwork, filled with ballast and well fendered. A freight shed, 20 feet square was also built for the convenience of local trade. The work was not quite completed at the close of the fiscal year.

The total expenditure to June 30, 1905, is $9,443.07.

SWIM'S POINT.

Swim's Point, which is practically a continuation of Clark's harbour, is situate one and one-half miles east of the town proper.

The wharf, as first constructed, consisted of a stone-bank approach, made up of a natural slope rock-bank, 35 feet long, 25 feet wide on top, with a graded covering of 6 inches of good coarse gravel; the wharf proper, which was 178 feet in length, was built of alternate blocks and spans. It consisted of three 10-foot blocks of cribwork, three 18-foot spans and three 10-foot spans. Its width was 20 feet, except the last block which was 40 feet wide, constructed in the shape of an 'L' or return. The height of the outer end was 25 feet; the flooring being 4 feet above H.W.O.S.T.

The people of Clark's Harbour being desirous that the ss. *Senlac*, which plies between St. John and Halifax, touching at intermediate ports of importance, should call here, and as this was the only wharf where she would have sufficient water to dock, asked that the wharf be extended sufficient to accommodate a boat as large as the *Senlac*. The sum of $1,600 was estimated as sufficient to construct the desired extension.

In 1903-04, the sum of $1,214.56 was expended on that work, and during the last fiscal year an additional sum of $307.30 was expended making a total of $1,521.86.

The work consists of 40 feet of cribwork, 25 feet wide and 29 feet high at its outer end, or about 29,000 cubic feet of solid cribwork, at a cost of 5¼ cents per cubic foot. The work was substantially constructed.

Spring tides rise here 10 feet ; neaps, 7 feet.

SYDNEY QUARANTINE STATION.

The quarantine station in Sydney harbour is on the southern arm, near Keating Point, and about three-quarters of a mile from Point Edward, at the eastern extremity of land lying between the south and west arms.

The wharf, built by the Department of Marine and Fisheries and repaired and extended in 1902-03, is a block and span structure, extending 148 feet to 8 feet at low water. Spring tides rise 5 feet.

In 1903-04, the sum of $1,551.52 was expended in procuring creosoted timber and other materials to be used in repairing and extending the wharf.

The old wharf having fallen into such a dilapidated condition as to render its reconstruction and extension inadvisable, the appropriation for 1904-05 was made for expenditure in constructing a new wharf, using materials procured in 1903-04. During the year $1,673.71 of the amount appropriated was expended in procuring the additional materials, required in the construction of a wharf, to extend 173 feet to 10½ feet at low or 15½ feet at high water; consisting of an inner and four intermediate blocks 14 feet in width, and an outer block 20 feet in line of work by 40 feet, and in constructing the inner and three intermediate blocks.

TITLE PASSAGE.

Title Passage, Guysboro' county, is a narrow boat channel between Durrell island, at the western entrance to Canso harbour and the mainland.

In 1904-05, an offer to remove obstructions, boulders, left at the side of a channel made by dredging a bar near the entrance of Title passage into Canso harbour in 1900 for the sum of $300, was approved but the work was not performed.

UPPER WOODS HARBOUR.

Upper Woods harbour is a village of about 400 population, situate in the south-western part of Shelburne county, about 18 miles east of Barrington, and 40 miles south-west of Yarmouth. It is an inlet from the Atlantic about three miles in length and about half a mile in width, dry at L.W.O.S.T. except in a channel which runs nearly through the centre of the place with a depth varying from 9 to 18 feet at L.W.O.S.T. At the mouth or lower end of this channel there is a rapid or falls of about 2 feet descent, and it is only at H.W.O.S.T. that these falls can be readily passed, so that the harbour is limited for the use of small vessels and open fishing boats only.

There were no wharfs in the immediate vicinity of this inlet at which vessels of moderate draught could call for landing freight, &c., the nearest being four miles to the eastward, or five miles to the westward. This department therefore constructed, in 1899-1900, the following works :—

First, on the west side of the island, known as Smith's island, a pier 77 feet long, 20 feet wide with an 'L' or return of 27 by 20 feet, composed of two blocks of crib-work, 11 by 29 feet, three spans of 13 feet in the clear, 7½ feet each and a pile trestle work consisting of four pile trestle bents separate, each 8 feet 8 inches, with a width on top of 40 feet. Second, a stone bank 20 feet wide, connecting this pier with the island. Third, a causeway between the island and the mainland, 534 feet long, 16 feet wide and 10 feet high, on the average, comprising trestle work of 44 bents, separate each 10 feet centres, two blocks of cribwork 10 feet by 16 feet, a span 13 feet long and two rock-bank approaches 20 feet wide on top.

During the fiscal year 1904-05, authority was given to expend a sum not exceeding $100, in repairing this work. Owing to the ice and frost raising some of the pile-work in the causeway, several stringers were broken and a portion of the work was at least three feet higher than its original elevation. These piles were driven down again, several broken stringers and guard-rails were replaced ; the work was last spring in good condition. Spring tides rise 10 feet; neaps, 7 feet.

VICTORIA.

Victoria, King's county, is situated at the mouth of Church Vault brook, on the south shore of the Bay of Fundy, 52 miles north-west of Digby Gut and half way between Morden and Ogilvies wharf, from each of which it is distant about 4 miles.

The breakwater, which also serves as a landing and loading pier, was begun in 1864 and finished in 1867, at the joint expense of the inhabitants and the provincial government. It is 243 feet long, 27½ feet wide at the outer end, 23 feet wide at its inner end and 24 feet in height at its outer end.

In 1878, the work was repaired and raised 4 feet. Slight repairs were made in 1891 and in 1893.

In 1900-01, the sum of $398.81 was expended in renewing 88 feet in length of the crib breakwater, forming the eastern side of the road approach. The new work is from 6 to 10 feet high, from 10 to 15 feet wide, strongly built of round-cribwork, well fendered and fully ballasted. A portion of the flooring of the shore end of the breakwater was also renewed.

In 1902-03, the sum of $653.53 was expended in refilling with solid cribwork a breach in the shore end of the breakwater that had been made by heavy seas in the spring of 1901. The new patch is 30 feet long, about 18 feet wide and 14 feet high.

In 1904-05, the sum of $182.39 was expended in filling with cribwork and ballast a hole on the seaward face of the work, about 5 feet square, and the replacing of a few pieces of close sheathing that had been torn off by ice the previous winter.

The total expenditure to June 30, 1905, is $2,862.97 including a refund to the Provincial Government of $450 in 1887-88.

This work was transferred to the control of the Department of Marine and Fisheries on June 12, 1888.

Spring tides rise 36 feet.

VICTORIA BEACH.

Victoria Beach, Annapolis county, is situated on the north side of the Annapolis basin, thirteen miles south-west from Granville ferry which is on the north side of Annapolis river, directly opopsite the town of Annapolis. It is four miles north-east from the town of Digby and about a mile and a half to the north-east of the entrance of Digby Gut. The whole distance from Granville ferry to Victoria beach, thirteen miles, and for another two miles down to Digby Gut, is a thrifty and well-settled farming and fishing district. Victoria Beach is the terminus of the Middleton and Victoria railway, now under construction, a part of the Halifax and South Western railway system.

On June 15, 1904, a contract was entered into between the Department of Public Works and Messrs. Reid and Archibald of Halifax, in the sum of $93,890, for the construction of a pile-work pier for general utility and to serve as a terminus for the Middleton and Victoria Beach railway. The total length of the structure when completed will be 1,350 feet ; it has a width of 50 feet and a height along the whole length of the 'L' of 57 feet. The 'L' is 350 feet long and at L.W.O.S.T. will carry a depth of 25 feet of water. Spring tides rise 27½ feet, neaps 23 feet.

The pier is constructed of pile-work, the bents, of seven piles each, being spaced 9 feet apart in the length of the work. The total number of bents is 153 of which the piles in the first 40 are of native spruce and the outer 113 bents of creosoted Virginia pine. Caps, stringers braces, walings and guards are all of Georgia pine ; the flooring of native spruce 6 inches thick.

On June 30, 1905, the total value of work done was $66,016.60.

WALLACE HARBOUR.

Wallace harbour is situate on the south side of the Straits of Northumberland about midway between Pictou harbour and Bay Verte. It is at the mouth of Wallace river and is well sheltered from all winds. On the south side of the harbour at a point where the harbour is slightly more than ½ mile in width, is situated the village of Wallace with a population of about 800.

The industries of the place are farming, fishing, and quarrying freestone of which there are large and valuable beds in this vicinity.

On the north side of the harbour there was, many years ago constructed a landing to accommodate the ferry service across the harbour. This landing was inadequate, and in 1879 the department dredged a channel for use of ferryboats during all times of tides. This subsidiary channel was about 1,600 feet long, 45 feet wide and 7 feet deep at L.W.O.S.T.

To prevent the inner end of this channel from filling in and also to afford special facilities to the people of North Wallace and Fox Harbour, the department in 1888-89, constructed a wharf starting from the shoreward end of the public ferry road, running past the remains of the old landing, along the seaward side of the subsidiary channel, for a distance of 165 feet. In 1889-90, this work was extended a further distance of 180 feet with a width of 20 feet, the last 20 feet of which is 40 feet wide and in the shape of an 'L' or return.

During the fiscal year 1900-01, the sum of $498.38 and the next year, the sum of $250, were expended in effecting necessary repairs to this work.

On the south side, or at Wallace village, there is also a wharf constructed by this department in 1897. The distance between these two wharfs is about 2,350 feet about 1,400 feet from the end of the north wharf, to the channel, 750 feet across the channel and 200 from the end of the south wharf to the channel. The distance from the channel to the south wharf was also dredged, but this dredging has filled in so that now the ferry boats can ply only at certain times of tide.

The people have been demanding better service and in consequence of their wishes the department, this last year, has been extending the north wharf to the channel, the distance of 1,400 feet, and at the end of the year had practically all the piles driven, except the fender piles, a portion of the caps, stringers and flooring. After this is completed, it is the intention of the department to extend the south wharf its requisite 200 feet or thereabouts, thus having nothing but the narrow channel to cross, which can be done at all times of tide.

Spring tides rise here 7 feet, neaps 4½ feet. The expenditure during the last fiscal year is $3,980.26.

WASHABUCK CENTRE.

Washabuck, Victoria county, is a district on the south side of the eastern end of St. Patrick's channel, an arm of the Bras d'Or lakes, and extends about six miles along the shore. Washabuck Centre is situated near the centre of the district.

In order to facilitate the shipment of agricultural produce and cattle from the district, during 1903-04 a wharf was constructed by the department at this place. The wharf is a block and span structure, 218 feet long, extending to 12 feet at low water, and is 20 feet wide, with an 'L' at the outer end, 20 by 20 feet ; it is connected with the public road by a road 102 feet long and 20 feet wide, fenced in on each side. The blocks and the shore abutment are constructed with round timber substructure, and the two outer blocks are protected by close-sheathing on their outer faces.

During 1904-05 the sum of $147.27 was expended constructing a warehouse on the outer end of the wharf. The building is 16 feet in length, 10 feet in width and 7 feet in height of post ; it has a two inch spruce flooring, one door 6 feet wide and a small window at end, and the roof is cedar shingled.

WEDGE POINT.

Wedge Point, Yarmouth county, is the southern extremity of the peninsula called 'Tusket Wedge', three miles long north and south, by half a mile to a mile wide, east and west, situated some 10 miles south-east from Yarmouth, the county town. The population of the peninsula comprises some 500 people, the majority being engaged in, and more or less dependent upon, the fisheries. On the east side of the peninsula, there was no shelter or protection whatever for the fishermen, of whom there are a considerable number and they were obliged to keep their boats in Goose bay, on the western side.

In 1902-03, the sum of $1,000 was expended in commencing the construction of a breakwater. The work built was 119 feet long, 19 feet wide and from 5 to 12 feet high ; it is substantially built of round-log cribwork, well fendered and ballasted and close-sheathed on the seaward side.

In 1903-04, the sum of $1,701.61 was expended in building an extension to the breakwater built in 1902-03. The new block is 100 feet long, 19 feet wide on top and from 12 to 15 feet high, well and substantially built of cribwork, sheathed on the seaward side and filled solid with stone.

In 1904-05, the sum of $2,367.47 was expended in extending the breakwater by a block of substantial cribwork 100 feet long, 19 feet wide on top and from 14 to 16 feet high. On the seaward face the work is close-sheathed and provided with a break 4½ feet high.

The total expenditure by the department to June 30, 1905, is $5,069.08.

Springs tides rise 12 feet, neaps 10 feet.

WEST ARICHAT.

West Arichat is a small but safe harbour on the south side of Isle Madame, sheltered from the south and west by Creighton island and by a breakwater between it and the mainland.

The breakwater is 1,211 feet in length. A portion of it, extending 888 feet from the island, was built by the provincial government in 1867 and the remainder by the department in 1874. It is of round timber open-faced, and was fully ballasted. The top of the covering is 11 feet above the bottom, which dries at low water, except near a 25 feet opening between the old and new works, and 6 feet above high water.

The appropriation was for renewing the floor-stringers and covering in places and for repairs on each side of the opening, including repairing and strengthening the work on the west side and reconstructing a portion of the work on the east side.

During 1904-05 the sum of $848.40 was expended in procuring the materials required, and in reconstructing the work on the east side of the opening.

WEST ARICHAT WHARF.

West Arichat, Richmond county, is a large settlement on the south side of Madame island, about three miles to the westward of the town of Arichat.

The harbour is easy of access and perfectly safe, being sheltered from the south and west by Creighton island, and by the breakwater between the island and the mainland.

The sum of $3,000 was voted for expenditure during 1904-05, towards the construction of a wharf at Rosdet Point, on the northern entrance to the harbour; on May 23, 1905, a plan and specification for the proposed wharf were submitted for approval.

The proposed work consists of a block and span wharf, 88 feet long and 20 feet wide, with an 'L' on the eastern side of the outer end 28 feet long and 24 feet wide, and of a cribwork approach 300 feet long and 16 feet wide, to connect the wharf with the public road. The cribwork approach is to be constructed with round timber, filled in with stone and gravelled on top, and its faces are to be sheathed. The blocks are to be built of round timber, with creosoted substructure, properly ballasted and fendered, and the outer faces of the outer block to be close-sheathed, between the fenders.

Up to the end of the fiscal year tenders for the work had not been called.

WEST BAY (SOUTH).

West Bay (South), Richmond county, is situated on the south side of West bay, the south-western arm of the Great Bras d'Or lake.

'The Points,' so-called from the number of headlands projecting into the south side of West bay, is a scattered settlement, extending along the shore for a distance of four miles, and the centre of the settlement is about twelve miles eastwardly from West Bay port, at the head of the bay, and fifteen miles northerly from the St. Peter's canal.

On September 1, 1903, a contract was entered into, for the sum of $2,980 for the construction of a wharf, 250 feet long and 20 feet wide, at 'The Points,' inside of Pringle island.

The work under contract consisted of a cribwork shore abutment 20 feet long, and of a creosoted pile-wharf 230 feet in length.

Construction was commenced on June 13, 1904, and up to the end of the fiscal year 1903-04, all the bearing piles were driven and capped, the outside floor-stringers were placed and secured, the outer 12 pile-bents were braced and the cribwork abutment was placed and partly ballasted.

The work under contract was completed and accepted on July 26, 1904.

Expenditure during last fiscal year, $1,335.

WEST BERLIN.

West Berlin, is a fishing settlement situated about nine miles east of Liverpool, with a population of about 400. The inner cove, in which the fishermen found shelter for their boats, was separated from the Atlantic by a shingle beach about 800 feet in length. As the destruction of this beach was threatened, the department in 1899-1900, constructed a piece of beach protection composed of stone-filled, round-log cribwork, 387 feet long, 6 feet wide on top and varying in height from 5 to 10 feet. The total cost was $1,484.43.

This beach beyond the end of this protection again washed away, and it was found necessary to protect the work in order to render this practically impossible of recurrence.

During the last fiscal year the department expended the sum of $1,304.66 in constructing this extension. The new work is 240 feet long, 8 feet wide on top 12 on the bottom, and has an average height of 9 feet, and contains approximately 21,600 cubic feet of cribwork, stone-filled to the top, well fendered and fastened.

Spring tides rise 7 feet, neaps 5 feet.

WEST CHEZZETCOOK.

West Chezzetcook, Halifax county, is situated on the western side of Chezzetcook inlet, which lies about sixteen miles east of Halifax harbour. The inlet is from half to three-quarters of a mile wide at the mouth, it extends five miles inland and receives the discharge of several small lakes at its head. The population of this village is from 700 to 1,000, located in a scattering manner along the west shores of the inlet. The chief pursuits of the people consist of fishing, farming and some lumbering.

The inlet itself, which has an average width of one mile, is shallow, with a bottom of sand and mud so that at low water there are extensive flats laid bare. There is, however, a narrow tortuous channel running to the extreme head of the inlet with a depth of from 6 to 8 feet at L.W.O.S.T. which is used by numerous fishing schooners, coasting schooners and other small craft such as three and four hand fishing boats and skiffs.

Owing to the gradual filling up of the entrance to the channel with accumulations of sand, a breakwater or mole was constructed by this department in 1892, at a cost, by contract, of $11,160.97. This work was designed to create a scour to deepen and improve the navigation of the entrance to the channel. It is built in a westerly direction from the foot of the southern end of Conrod's island, which forms the western side of the western channel entering the inlet. At this point the channel from high water to high water was 1,500 feet wide, therefore from the end of the breakwater to high water is now only 600 feet. This great contraction of the channel had the effect of creating a strong current at ebb and flood tide, and the fine sand along the face of the work was scouring to such an extent as to cause the whole length of the 'L' to settle from 4 to 6 feet and the stem of the work, or the seaward 900 feet from 2 to 4 feet, this scouring necessitated the placing of a substantial toe of brush and stone along both sides of the whole work.

The breakwater has a length of 1,100 feet of which 900 feet is at right angles to the channel and the remaining 200 feet or 'L' parallel to it. At the southern end of the 'L' is a square block 30 by 30 feet which is close-sheathed with vertical sheathing 5 inches thick. The rest of the work was ordinary open cribwork, stone-filled, with sides battering 1 in 5 and a top width of 15 feet.

In the spring of 1895, severe storms damaged 363 feet of the top of the work. In September of the same year $500 was expended in repairs and renewals : five logs in height for a distance of 363 feet were taken apart and rebuilt. In the fall of 1897

similar damage was done, showing that the work is located in the wrong place and that the seaward side should have been close-piled or sheathed in order to protect it. In the summer and fall of 1898, the sum of $999 was expended in reconstructing a length of 235 feet of the breakwater from 2 to 4 logs high, whilst a length of 288 feet was sheathed. This was not sufficient, for in January, 1900, the part not sheathed was lifted and partly destroyed over a length of 175 feet. The sum of $300 was expended during the fiscal year of 1900 in partially repairing this damage. In 1900-01, these repairs were completed at a cost of $496.59. The work was thoroughly sheathed and the covering entirely renewed. Besides this the outside of the breakwater has been rip-rapped with a toe of stone and brush in order to catch the drift sand. This stone and brush has effectually accomplished its purpose and the sand which had accumulated to a large extent will prove a protection to the main portion of the breakwater.

In 1904-05, the sum of $2,931.79 was expended in extending the 'L' of the breakwater. The work consists of first, 80 feet in length of stone and brush embankment, 20 feet high, extending up to within 1 foot of L.W.O.S.T. This has been surmounted by a substantial block of cribwork 12 feet wide, 6 feet high and 40 feet long.

Total expenditure to June, 1905, is $17,215.57.

WEST WOODS HARBOUR.

West Woods harbour, is a small village of about 200 people situated about two miles directly west of Middle Woods harbour. The people here had no means of landing their goods, except to drive about 6 or 7 miles, and truck their fish or produce there, returning to their homes with their purchases.

During the fiscal year 1903-04, this department expended the sum of $686.93 in partially constructing a wharf.

During last fiscal year, a further sum of $292.82 was expended in completing the structure, making a total expenditure of $979.82.

The wharf consists of a rock-bank approach, 18 feet in length, a clear span 15 feet in length, a cribwork block 20 feet in length, another clear span of 15 feet and block 20 feet, with an 'L' or return at its head, 18 feet long and fourteen feet wide. The rock-bank is 24 feet wide, and 9 feet high, whilst the remainder is 20 feet wide not including the 'L' or return which is 14 feet wide or 34 feet wide over all with a height at the outer end of 16 feet.

The outside end of the wharf is directly at the inner edge of the channel and easy of approach at all times of the tide. Spring tides rise 10 feet; neaps, 7 feet.

WHITE HEAD.

White Head, Guysboro' county, is a fishing settlement on the western side of White Haven, one of the finest harbours on the southern coast of Nova Scotia, situated about fourteen miles to the westward of Canso.

The sum of $4,100 was voted for expenditure during 1904-05, towards the construction of a wharf at White Head, 168 feet in length and 20 feet wide, with an 'L' on each side of the outer end, 20 x 20 feet, forming a 'T,' and extending to 16 feet at low water.

Plans and specification for a block and span wharf to be constructed of round native timber, excepting the shore abutment 60 feet in length, which is to be of stone, were prepared. Arrangements were made for the delivery of the timber required, on the opening of navigation, but could not be delivered by the end of the fiscal year.

Out of the amount voted, the sum of $980.23 was, however, expended in the construction of the stone abutment and in procuring the iron required for the work.

WHITEWATER.

Whitewater, King's county, is a small farming and lumbering settlement of 200 or 300 people, situated on the west coast of Minas basin, about three-quarters of a mile south of Cape Blomidon, and ten miles north-east of the village of Canning. In 1897-98, the department built a public wharf at a cost of $3,999.08, by day labour. It is 285 feet long, 20 feet wide, with an 'L' at the outer end 35 feet long, where at high water ordinary spring tides there is a depth of 17 feet of water. The wharf is constructed of block and span work, the blocks solid cribwork, 19 feet long in the stem of the wharf, the spans being 14 feet in clear opening.

In the fiscal year 1901-02, the sum of $249.95 was expended in building a block of cribwork 40 feet long, 10 feet wide and 12 feet high, on the northern side of the shore end of the work, to replace an ancient and dilapidated block that retained the bank forming the approach.

In 1902-03, the sum of $881.98, was expended in filling the two outer spans of the block and span wharf, with solid cribwork to full height and half width, *i.e.*, 11 feet by 18 feet to 19 feet high, and constructing a small block about 10 feet square and 10 feet high, of the shore end, to act as a retaining wall for the approach.

In 1904-05, the sum of $404.24 was expended in renewing the whole floor of the wharf, including some few new stringers and guard-timbers.

Spring tides rise 40 feet, neaps 34 feet.

WHITE'S COVE.

White's Cove, Digby county, is a settlement of some 200 or 300 people, engaged in fishing and farming, situated on the shore of St. Mary's bay, about five miles south of Weymouth.

In 1903-04, the department expended $1,804.63, in extending and repairing an ancient wharf of cribwork. The new block is 38 feet square and from 18 to 20 feet high, substantially built of round-log cribwork. The next 100 feet in length shoreward was also taken down and rebuilt and the whole wharf, 260 feet long, was levelled up with gravel.

In 1904-05, the sum of $1,004.01 was expended in extending the breakwater by a new block 30 feet long, 38 feet wide, from 19 to 21 feet high, substantially built of cribwork of the usual type.

WHYCOCOMAGH.

Whycocomagh is a village on the south side of a bay of the same name, at the head of St. Patrick's channel, an arm of the Bras d'Or lake.

A private wharf at this place was purchased together with a warehouse and a right of way to the public road, in 1897-98, and repaired and extended during the year 1898-99. It is 228 feet long, including 144 feet of stone work, 21 feet wide and 84 feet of pile-work (25 feet wide over 59 feet of its length and 60 feet wide over the outer 24 feet) built over the remains of an old block and span structure. The depth at the outer end is 12½ feet at low or 13½ feet at high lake level.

In 1902-03, the sum of $450 was expended in repairing the sides and ends of the outer 50 feet of the approach, and in blocking up and repairing the floor of the warehouse.

During the fiscal year 1904-05, the sum of $499.98 was expended in completing repairs to the wharf undertaken in 1902-03, in renewing the covering of the outer end or 'head' in raising the approach and in repairing the warehouse.

WINDSOR.

Windsor, Hants county, is the county town of Hants and has a population of about 4,500. It is an important town situated at the head of the estuary of the River Avon, on the Dominion Atlantic railway, forty-five miles north-west of Halifax. In the neighbourhood are extensive quarries of gypsum, of which 120,000 tons are annually shipped to the United States. Some two or three million feet of lumber, B.M. are annually exported by water. Up to a dozen years ago the wharfs of the town were comparatively free from mud, and at high water, large vessels could lie alongside and discharge or load. In the last few years, owing partly to the construction of the new highway bridge, the mud had accumulated in front of the wharfs to such an extent that it is only at extreme high tide that moderate sized vessels can approach or leave the wharfs.

With the object of scouring away the accumulated mud, the department in 1897-98, began the construction of a training weir, extending down stream from the corner of the Falmouth abutment of the road bridge at an angle of 45 degrees with the bridge. The weir is constructed of brush mattresses at the bottom, with sufficient stone to keep them in place, and with cribwork on top of them. The thickness of the brush mattresses, with their load of stone, is from 2 to 4 feet, the average depth of the main or under-crib is from 5 to 8 feet and the uniform height of the 'A' shaped top crib is 7 feet, the sloping sides of the work are sheathed with 3-inch hardwood plank, and the crest is covered with 6 by 6 by ¾ steel angle, securely bolted. The work is built on shifting quicksands and owing to the great rise and fall of the tides (about 40 feet) and the great velocity of the current at ebb and flood tide, it was constructed under great and peculiar difficulties.

In the fiscal year ending June 30, 1901, the sum of $2,173.74 was expended in completing the work to its originally designed length of 600 feet.

In the fiscal year ending June 30, 1902, the department expended the sum of $2,725.93, in extending the work a further distance of 100 feet and in making repairs.

In 1903-04, the sum of $98.71 was expended in replacing a small quantity of the hardwood sheathing on the outer end of the work that was torn off by ice in the previous winter.

In 1904-05, the sum of $53.07 was expended in replacing some more of the hardwood sheathing of the training weir that was torn off by the ice in the previous winter.

Spring tides rise about 40 feet; neaps, 36 feet.

WOLFVILLE.

Wolfville, King's county, is a town of about 2,000 inhabitants, situated on the right bank, and near the mouth of the Cornwallis river, which issues into the Basin of Minas at its south-west corner. It is an important station on the Dominion Atlantic railway, half way between Annapolis and Halifax, sixty-six miles from Annapolis and seven miles east of Kentville, the county town of King's.

In 1900-01, the department, at a cost of $6,360.50, built by contract a public wharf on the right bank of the river, near its mouth, at a distance of about half a mile from the town. The approach consists of an earthwork embankment, 144 feet long, 25 feet wide and of an average height of 5 feet. The wharf itself which was substantially built of pile-work was 152 feet long, 36 wide, including an inclined slip on the south side 10 feet wide. It has an 'L' on the outer end 82 feet long, giving a total face length on the river channel of 116 feet, the 'L' is 40 feet wide and is from 28 to 29½ feet in height along the face, giving a depth of water at H.W.O.S.T., of about 46 feet. At L.W.O.S.T., the river channel carries a depth of from 4 to 6 feet of mostly fresh water.

In 1902-03, the channel of the river moved shorewards owing to erosion, a distance of some 20 or 30 feet causing the two outer rows of piles of the wharf to lose more than half their hold in the mud and sand. In consequence of this it became

necessary to build cribwork in the spaces between the two outer rows of piles at the end of the 'L,' and on the opposite end of the wharf, alongside the inclined slip. This mode of treatment being insufficient and the scour continuing, it was decided to remove the outer 20 feet in width for the whole 118 feet in length of the wharf, and rebuild it on the inner side of the 'L.' The work was begun on October 1, 1903, and vigorously carried on until December 24, when, owing to the severity of the weather and the rapidly accumulating ice; operations were suspended.

The winter of 1903-04, was the severest known for a great many years. Ice formed in and around the piles of the wharf to a greater weight and thickness than had been known since the wharf was built. The floating power of the ice, added to the reduced hold of the piles in the bottom, from the erosion of the channel, caused the whole 'L' to be lifted up by an exceptionally high tide of the third March, 1904, to a height of from 5 to 8 feet. A few days later the whole outer portion of the wharf, including the 'L,' was carried away and destroyed.

In 1903-04, the sum of $1,768.89, was expended in the above alterations and improvements and after the destruction of the wharf, in saving such of the timber as was possible.

In 1904-05, the sum of $78.80, was expended in saving and booming old timber from the destroyed pile-wharf and the sum of $2,565.11 in beginning the construction of a substantial cribwork wharf in its place. At the close of the fiscal year the work was about one-third completed.

Spring tides rise 48 feet, neaps 40 feet.

YARMOUTH BAR.

Yarmouth, the county town of Yarmouth county, is situated on the south-western extremity of Nova Scotia. It is a thriving and prosperous town of nearly 7,000 inhabitants, and, next to Halifax, the largest and most important in Nova Scotia proper. It is the terminus of the Dominion Atlantic railway, whose fine Clyde-built steamers make regular trips throughout the year to Boston. There are several important manufactories in the place, but the leading business is shipping, of which a larger tonnage is owned here than in almost any locality in Canada.

At low water, Yarmouth harbour, in which spring tides rise 16, neaps 13 feet, consists largely of mud flats covered with eel grass. The harbour is formed by a succession of shingle or gravel beaches (called Stanwood Beaches), aggregating about one mile in length, which connect the northern end of Cape Fourchu island, also about a mile long, with the southern end of Stony point on the main land, and separates the harbour from the Bay of Fundy.

In 1867, it was found that part of the beach between Cape Fourchu and Stony point, was gradually wearing down and unless the action was arrested, the sea would eventually sweep away the beach and destroy the harbour. The government of Nova Scotia began the work of protecting the beach in 1867, constructing 200 feet of cribwork at Stony point. Between 1873 and 1875 the Public Works Department constructed the remaining 2,800 feet of protection work required to reach Cape Fourchu and added buttresses or groynes to stop the movement of the gravel.

Between 1875 and 1878 the protection works, though substantially built of stone-filled cribwork and close-piled on their seaward faces, had to be repaired and strengthened, the expenditure amounting to over $25,000.

Between 1888 and 1896, no further works of repairs were undertaken on the beach protection, and it became dilapidated and decayed. Breaches were made through it by the sea in various places. During the year 1896-97, the sum of $2,983.62 was expended in carrying on the most urgent works of repair, and in 1897-98, a further sum of $3,234.51 was expended in continuing and completing these repairs. This last sum was applied in rebuilding a length of 50 feet at the eastern end of the protection work and in constructing a groyne, projecting at right angles from the

same end, for a distance of 175 feet. The groyne is 25 feet wide and 11 feet high, substantially built of round-log, stone-filled, cribwork. Its object was to protect the beach at the north-eastern end of the main cribwork protection by accumulating the gravel and breaking the waves before they expended their force on the beach. It has admirably fulfilled its purpose, as gravel has accumulated at the junction of the groyne with the main work to a depth of over 14 feet.

In 1898-99, the sum of $300 was expended in repairing a small but serious breach 25 feet long, in the bottom of the outer face of the beach protection work, and with covering with 3-inch hemlock plank a length of 430 feet of the top of the work, in order to prevent the ballast from being washed out by the waves.

In 1899-1900, the sum of $970.27 was expended in repairing two or three small but dangerous breaches in the seaward face of the work, and in covering the top for a length of about 670 feet with 3-inch plank to prevent the sea from washing out the ballast.

In 1900-01, the sum of $3,389.70 was expended in extensions and repairs, the individual expenditure for the work done being as follows :

(a) $142.43 was expended in repairing and filling with ballast a length of 60 feet of the older portion of the work.

(b) $2,798.50 in extending the work 514 feet westerly ; this new length was 8 feet wide, from 5 to 8 feet high, substantially built of round-log cribwork, sheathed on the seaward side and covered on top with round spars well spiked on.

(c) $448.77, in rebuilding a length of 50 feet of the older portion of the work, near the eastern end, which was severely damaged by a heavy sea, November 8-10, 1900.

In 1902-03, the sum of $120.94, was expended in a few petty and miscellaneous repairs to the beach protection work, the work done comprising the replacing of a few pieces of close-sheathing washed off by winter seas, the renewal of some flooring and the re-spiking of loose portions.

In 1903-04, the sum of $325.57 was expended in building a fence on both sides of the beach protection, 1,250 feet long, for the purpose of making it safe for horse traffic.

A few minor repairs to the beach protection work were also made.

In 1904-05, the sum of $948.32 was expended in general and miscellaneous repairs.

Spring tides rise 15 feet; neaps, 12 feet.

PRINCE EDWARD ISLAND.

BAY FORTUNE.

Bay Fortune harbour, King's county, is situated on the south side of Rollo bay, on the east coast of the island and about five miles south-west from Souris, the eastern terminus of the Prince Edward Island railway.

To improve the channel leading to the wharfs, situated on each side of the mouth of the 'Bay Fortune river,' the provincial government, some years ago, built a short breakwater on the eastern side, so as to contract the channel and thus increase the scour and deepen the water over the sand bar obstructing the entrance. During 1892-93-94, the department extended the breakwater, repaired the inner or original work and connected it with the wharf, on the point of the beach, thus extending the work to a total length of 850 feet, with widths varying from 12 to 20 feet.

Much benefit being said to have resulted from the work; the water over the bar being improved, permitting of a larger class of vessels, as was desired, entering for cargoes.

During the fiscal year 1904-05, the sum of $449.04 was expended in reballasting the breakwater, where settlement and washout had occurred, and building a brush and stone beach protection work at inner end of breakwater, for a length of 500 feet, where there was danger of a new channel forming.

BAY VIEW.

Bay View, Queen's county, is situated on the eastern side of, and near the mouth of the Hope river, which enters New London harbour, about three and half miles south-east of the harbour's entrance.

The pier, one of those which was assumed by the Dominion government in 1883-84, is 509 feet in length; the 409 feet outwards from the shore being from 18 to 20 feet in width, then increasing gradually to a width of 35 feet at the outer end, where a depth of 10 feet is carried at low water spring tides, or of 14½ feet at high water springs, which rise 4½ feet.

When assumed by the department the pier was in very bad condition, and being as well of poor construction, repairs are about yearly required to keep it in fit condition for traffic; while not exposed to any heavy sea, extreme high tides when occuring during storms usually cause damage, as was the case on November 14, 1904. An expenditure of $673.79 was required to repair and strengthen during the past spring; general repairs being required over all of the work, in addition to which, a timber protection 'break' was built on seaward side, protected with fender piles, &c.

BEACH POINT.

Beach Point, King's county, is on south side of entrance to Murray harbour. From the 'point' which is close to the channel, a sand spit extends in a westerly direction, along the edge of the channel, about a mile, inclosing between it and the shore a basin carrying from 3 to 5 feet at low water, affording good shelter and anchorage for fishing boats. The sand spit or bar, dry at low water, and having a width of about 500 feet protects it from any sea.

To render this shelter available, a cut was made through the bar during the winter of 1904, by the use of a mud digger, worked from the ice. The channel so dredged is 575 feet in length and 10 feet in width.

During the past winter the channel was widened and cleared out, giving now a total width of 20 feet, and so far, has proved most satisfactory, being a great benefit to the fishermen of the locality.

The amount expended during the fiscal year was $471.27. Total expenditure to date $805.76.

BELFAST PIER.

Belfast Pier, Queen's county, locally known as 'Haliday's Wharf,' is situated on the south side of Orwell bay, about one mile from the village of Eldon.

This pier, constructed by the government of Prince Edward Island previous to confederation, was taken over by the federal government in 1883. Besides affording shipping facilities for the neighbourhood, it is also the port of call for a passenger steamer plying, during the season of navigation, tri-weekly, between Charlottetown and other ports on Orwell bay, &c. It has a length of 600 feet with return or 'L' of 145 feet, the inner 440 feet has a width of about 27 feet, and the outer 160 feet and 'L,' a width of from 30 to 32 feet. The 'L,' or pier head, has on its inner and outer side as well as eastern end, a depth of 8 feet at low water spring tides, or of 17 feet at high water. Dredging was done to that depth by the department, during summer of 1903, giving good approach to the pier, and a safe berth for vessels, on the inner side of the return.

During the past season the sum of $1,749.40 has been expended; in the reconstruction of a length of 190 feet, of the inner part of the eastern face; of 145 feet of the western face, and effecting general repair over all of the inner 440 feet of the work which has become, by age and decay, quite unsafe.

CAMPBELL'S COVE.

Campbell's Cove, King's county, is on the north side of the island, about 9 miles from East Point, and 14 miles north-west from Souris, the eastern terminus of the Prince Edward Island railway.

This place was in 1872 selected by the provincial government for the construction of a small breakwater, 300 feet long and 30 feet wide, on the reef that extends from the west side of the cove ; its inner end being 70 feet beyond high water mark ; much benefit being derived from the work, both by the fishing and farming industries of the district.

The Dominion government took over this breakwater when Prince Edward Island entered confederation. In 1882-83 necessary repairs were made and the work was extended 250 feet seawards, and a gap of 70 feet, between its inner end and the shore, filled in, making the work in all 620 feet long. This breakwater sheltered a small area carrying a depth of about 4 feet of water at low tides, or 8 feet at high water springs, which here rise about 4 feet. The old breakwater remained in good condition up to 1899, when some slight repairs were required, after that date, however, owing principally to the ravages of the 'teredo,' each storm caused more or less damage to the cribwork, and notwithstanding the extensive repairs made in 1895, the work continued to suffer each fall and winter. In 1899 a length of 80 feet of the original work was completely carried away, and an adjoining length of 50 feet so badly damaged, as to require reconstruction. This latter damage was made good in 1900-01, and the outer part of the work, destroyed in 1896, was rebuilt in 1901-02.

During the severe storm of November 14 last, the inner portion of the breakwater suffered damage to the covering and floor stringers; some ballast was washed out, and a length of about 50 feet of seaward face was injured. Materials for necessary repairs were procured during the past winter, at a cost of $471.09.

CANOE COVE.

Canoe Cove, Queen's county, is situated on the south coast of the island about 18 miles by water from Charlottetown, and 10 miles from Crapaud. There is fairly good shelter from winds from south-east to west, protection being given by a reef extending from the west side of the cove ; but it is, however, exposed to the south and south-west winds.

The construction of a breakwater was commenced in the spring of 1901, and continued until July 1, 1903. Materials were procured during winter, and the construction carried on during summer and fall months. The work was done by day labour, under a foreman, who had built, in July, 1903, a length of 200 feet, one-half of which was finished, while the outer 100 feet required 2 feet of its height, flooring, sheathing of sloping face, &c.

The work, as built, is an isolated block being about 500 feet from the point, on the eastern side of the cove ; it runs nearly due west out to a depth of about 5 feet at ordinary low water, or of about 13 feet at high water spring tides. At its bottom the width is about 32 feet, and up to one foot above low water, both the inner and outer sides have a batter of 1 in 12; on the inner side this batter is continued to the top, but the outer, or seaward side, has a slope of 1 in 1 and is to be sheathed, with 4-inch thick hardwood plank. The top of the work has a width of 19 feet, and is about 5 feet above ordinary high water spring tides.

Since July 1, last, the outer 100 feet of the work, mentioned as being unfinished, has been completed, having been built up the required 2 feet; the sheathing of the sloping face, flooring, &c., was put on at a cost of $764.88 which with outstanding accounts unpaid for previous work, and amounting to $223.30, made the total expenditure for the work $988.18.

CHINA POINT.

China Point pier, Queen's county, is situated on the west side of the Orwell river, near its entrance into Orwell bay.

Originally built by local government, its control was assumed by the Dominion government in 1884; it has in all a length of 426 feet, consisting of a shore abutment or approach 140 feet long, six blocks with intervening spans, and a pier head fronting 72 feet on the channel, and having a width of 37 feet, and a depth of 15 feet at low water, or 23 feet at high water spring tides, which here rise 8 feet.

Being a very old structure when assumed by the Dominion government, reconstruction of its pier head has since been necessary, and from time to time, repairs to the inner portion were required to keep it in passable condition.

Repairs are now necessary to the first inner block and connecting spans, and at the close of the fiscal year materials required for those repairs had been purchased at a cost of $294.77.

GRAHAM'S POND.

Graham's Pond, King's county is situated on the east coast of the island, about five miles south of the entrance to Cardigan bay, and about the same distance north of Murray harbour. The pond has a length of about half a mile, and a width of from 600 to 800 feet, carrying in the body of the pond, and a short distance from the entrance, a depth of from 5 to 7 feet of water at ordinary pond level, which was usually 1½ to 2 feet higher than ordinary low water, and 3 to 3½ feet below high water spring tides, which here rise 5 feet.

During the summer of 1900, a new channel was opened into the pond by the Marine and Fisheries Department (existing one having gradually worked to the south where the outlet passed over a reef) with the view, if possible, to admit of boats entering the pond at all stages of the tide, but the new cut was found on the occasion of the first north-easterly storms to be filling in again, and working back to what had been its former position.

In the fall of 1901, by the instruction of the department, the cut made by the Marine and Fisheries Department was cleared out, and a protection of brush, stone and piling placed at its entrance. This work proved effective in keeping the channel in the course desired, and besides, in giving some small place of shelter for boats.

Extension of the works has since been made each year, sums of $500 being expended each in 1902 and 1903, and a similar amount during the past season, when lengths of 60 feet were added to the outer ends of the cribwork or piers, on either side of the new channel. The piers each have now a length of 340 feet and width of from 15 to 20 feet.

GRAND RIVER.

Grand River wharf, Prince county, is situated on the north side of the Grand or Ellis river, near its mouth, where it enters Richmond bay, about seven miles north-east from Wellington station, on the line of the Prince Edward Island railway.

This pier was constructed by the Prince Edward Island government during 1880-81-82, at a cost of $4,618.60. It originally had a length of 654 feet with width of 22 feet, consisting of a shore abutment or approach 530 feet long, and two 'blocks' with intervening 'spans,' 25 feet each; the 'blocks' being respectively 31 and 44 feet long. The work was constructed of square timber close-faced, and filled in with brush, stone, &c.; the roadway, excepting on the outer block, which was floor stringered and planked over, was formed of clay and gravel filling.

Some eight or nine years ago the work became unserviceable, the outer block being carried away, and the filling, in the shore abutment, either washed out or so settled as to render passage over it impossible, and requiring reconstruction of the greater part of the work.

As the local government was unwilling to undertake the necessary repairs, the property was transferred to the federal government, in the fall of 1902, which then assumed its control. An appropriation of $1,500 was granted by parliament towards its reconstruction and repair, which work was commenced in the spring of 1904, and by the end of June of that year, all of the shore abutment had been placed in good condition. Plan and specification were then prepared and tenders received for the reconstruction, repair, &c., of the outer portion of the wharf, and this was awarded to Messrs. McNeill, Arsenault and Pembroke, for the sum of $3,155.

Work was commenced in early spring and by end of fiscal year was well under way, being built up to within one foot of high water, or equal to two-thirds completed.

MIMINIGASH HARBOUR.

Miminigash harbour, Prince county, is situated on the north-west coast of the island, about 15 miles from North Cape, and 18 miles north of West Point.

Before its improvement by the department it was one of the numerous ponds along the coast, having channels emptying into the Gulf of St. Lawrence, often changing position, and at times, when very severe storms occur, becoming completely closed, as they pass through low sandy beaches.

However, the entrance to Miminigash pond was to some extent sheltered by 'Miminigash Reef,' a ledge of rock nearly a mile long, lying parallel to the shore, about a half mile distant, it had much advantage over the other ponds along the coast, and so after its examination, and that of the other ponds proposed as sites for the formation of a harbour, it was selected by the department.

Work was commenced in 1878, and now consists of piers or breakwaters, on either side of the entrance (position of which has been made permanent) and confining its width to 56 feet. The breakwater on the north side is 550 feet long, and the one on south 350 feet. Inward of both there are protection works to guard against new channels forming through the beaches, which originally were little above high water spring tides.

During the past season the sum of $995.61 was spent in the construction of a cribwork block 120 feet long, averaging about 15 feet wide and about 10 feet high, a little north of the northern breakwater, from about low water mark, inward to some distance within range of high water spring tides. This work is to prevent sand and gravel being carried into the channel, over the breakwater, as usually happened during northerly storms in the fall; the work is said to have proved effective during the past season; its height is about 4 feet above that of the breakwater. A portion of the run was also deepened by the use of a mud digger, worked from a float, the length of cut made being 150 feet, with a depth of 5 feet, at low water.

The amount expended on dredging is $442.93 making the total expenditure for the last fiscal year, $1,438.54.

MINK RIVER.

Mink River pier, King's county, also known as 'Murray Harbour North,' is situated on the north-east side and near the mouth of Mink river, where it enters the southern side of Murray harbour.

The pier is 400 feet long, consisting of a shore approach or abutment of 200 feet; 'blocks' and 'spans' for 130 feet, 20 feet wide, and a pier-head 70 feet long and 32 feet wide, all constructed of squared timber and built close-faced.

The pier is one of the many works constructed originally by the local government and which was assumed by the Dominion in 1884. It being then an old struc-

ture, and much out of repair, work was required at different times to keep it in passable condition.

During the past season the sum of $300.61 was expended in renewing the floor stringering and covering of the outer block, and of the three adjoining 'spans'; putting in new mooring posts, making up roadway of the approach with broken stone and gravel, and placing the work for the time in good condition. At the end and sides of the pier-head there is a depth of 6 feet at low water or 12 feet at H.W.S. tides.

Tides rise 6 feet.

McPHERSONS COVE.

McPhersons Cove, King's county, is situated on the south side of Grand river, near its mouth, immediately within what is known as 'Morrison's Beach,' which separates Grand river from Boughton bay. The beach, which has a length of nearly a mile, extends in a northerly direction to about opposite Annandale, where a ferry is maintained by the local government.

A small wharf built on the point of the beach, was formerly used by the residents of the northern side of the river and vicinity; produce had to be hauled over the beach with great difficulty, and of late the wharf being so badly out of repair that it became useless.

At the request of the residents of the district, the department has undertaken to provide shipping facilities at the cove; plan and specification were prepared for a wharf 700 feet long. Tenders were invited and the contract was awarded to Mr. Thomas Campbell, for the sum of $8,999.

Work was commenced early last spring, and at end of fiscal year the contractor had about completed the approach, which has a length of 300 feet.

Expenditure during 1904-05, $2,645.58.

NEW LONDON.

New London harbour, Queen's county, is on the northern coast of the island, about ten miles east of the entrance into Richmond bay, and nine miles west from Rustico harbour. Within its entrance which has a width of about 1,200 feet, the harbour is about three miles long, and nearly as wide, it receives the waters of the 'South-west,' the 'Stanley,' the 'French' and the 'Hope' rivers, all of which are navigable for at least short distances, and having at them wharfs or shipping places, from which export is made of large quantities of produce, the districts surrounding the harbour being well cultivated, and very productive, and as they are also thickly settled a large quantity of general merchandise, coal, lumber, &c., is imported by water.

New London district not having, as so many other portions of the island, convenient railway facilities, the harbour as well is largely used as a fishing station, and harbour of refuge for fishermen, for which it is most conveniently situated being near some of the best fishing grounds on the Gulf of St. Lawrence.

To improve the entrance which is obstructed by a shifting sand bar, works were begun by the department in 1878, and these now consist of breakwaters and beach protections on either side; that on the eastern side now having a length of 1,200 feet, while the western one is 460 feet long; their purpose is to confine the water by preserving and extending the sand beaches, and thus by the increased current cause scour and increase the depth of water over the bar, which result has been obtained to a most satisfactory extent, the depth of water being much improved, at such times as the works are in good condition.

Since its construction the western work has received no injury requiring repair or expenditure, the eastern one, however, being exposed to a very heavy sea, strong

current and action of the ice, requires about yearly some expenditure for its maintenance.

During the year the sum of $749 was expended in making up settlement in the ballasting in different parts of the work ; repairing the sheathing of the outer block ; rebuilding a length of 80 feet of its inner end, and strengthening the end of the western breakwater.

The sheer dam or 'jetty' on the western side of the entrance, commenced on 2nd June last, was completed on October 5, 1904. This work which was let under contract, May 3, 1904, is about 1,000 feet inwards or southwesterly from the western breakwater; its purpose is to improve the depth of water over the shoal, at the junction of the 'French' and 'Southwest' rivers currents, formed there, it is said, during ebb tides. The work has in all a length of 550 feet, extending to near the inner edge of the shoal. It is constructed, for its inner length of 300 feet, of round log open cribwork, 12 feet in width, solidly filled with ballast and fender piled on the sides at ten feet centres ; for the further distance of 200 feet the work is 17 feet wide, and constructed of brush, piles and stone, the outer 50 feet being of similar materials but 23 feet in width, all of the 250 feet being close piled on the sides, and having the top or deck planked over.

The total cost of the work is $6,172.50, including $272.50 for superintendence.

Total expenditure during 1904-05, $5,461.25.

NORTH CARDIGAN.

North Cardigan pier, King's county, is situated on the north side of the Cardigan river, about 5 miles from Cardigan bridge, and is one of the Prince Edward Island piers which was assumed by the Dominion government in 1884.

The pier as constructed had a length of 381 feet ; consisting of shore abutment 100 feet long, and 7 'blocks,' with intervening 'spans,' from 23 to 25 feet wide, except the outer 'block,' or pier-head, which had a width of 32 feet.

Being a very old work when assumed by the Dominion government, it has since, from time to time, required extensive repairs; the greater portion of the original work was mostly rebuilt, in addition to which all of the 'spans' have been solidly filled in. However, this pier did not give sufficient accommodation for the shipping done at the place and an extension of 75 feet was commenced in the spring of 1904 ; the materials were procured during the previous winter, and the extension was mostly completed by June 30, 1904 (except some fender piling of creosoted timber.)

Work was completed on September 1 last, at a total cost of $2,980.59. The extension is 32 feet wide, standing in a depth of 14 feet at low water, or of 19 feet at high water springs, which rise 5 feet. It is built of close laid trimmed poles up to height of about low water, above which it is of squared timber close faced, solidly filled with ballast, and having the roadway on top formed of broken stone and gravel.

Expenditure during last fiscal year, $279.46.

PANMURE ISLAND.

Panmure Island, King's county, situated on the south side of Cardigan bay, about 4 miles distant from Georgetown, is about 1½ mile long by about three quarters of a mile wide, and is connected to the mainland by a sand beach about 1½ mile in length.

There being no shipping facilities on the island, all the surplus produce being hauled over the long sand beach to St. Mary's bay wharf, a distance of six miles, or loaded in small boats on the shore, thence unloaded into vessels anchored in the bay.

The sum of $2,000 was voted by parliament for a wharf, 300 feet in length, giving about two feet at low water, or six feet at high water spring tides, which rise here 4 feet.

Materials were got out last winter, and work commenced in May ; at end of fiscal year 200 feet of work was about completed.

The amount expended during last fiscal year was $1,285.92.

PORT SELKIRK.

Port Selkirk pier, Queen's county, is situated on the south side of Orwell river, near its entrance into Orwell bay, and is distant by water about twenty miles from Charlottetown.

The pier is in the form of a 'T' consisting of a pier-head, 250 feet long and 35 feet in width, fronting on the edge of the channel, and connected to the shore by an approach, 250 feet long and 23 feet wide. The whole pier-head and the outer part of the approach are composed of a series of 'blocks' and 'spans,' floor stringered and planked over.

During the past year the sum of $698.70 has been expended in levelling up southern block and span of pier-head, fender piling face and sides of this block, putting in new floor stringers, and covering where required, also the constructing of a small warehouse 12 by 18 feet, for use of shippers.

RUSTICO HARBOUR.

Rustico harbour, Queen's county, is situated on the north side of the island, about midway between East Point and North Cape, and is one of its most important fishing stations.

To improve its entrance, which is obstructed by shifting sand bar, the department, during 1881-82-83-84, constructed works on either side, for the purpose of confining the current at ebb tide, and thus by scour deepen the water. This result was to an extent obtained while the works continued in good order.

The breakwater on the northern side also protects the inner low beach, on which most of the fishing stages and fish houses are situated; originally it was 1,240 feet long (that on the south side being only 450 feet), but through the effect of storms, action of ice, and ravages of the 'teredo,' 120 feet of its outer end was, by 1884, completely carried away.

To prevent more of the work being damaged, extensive repairs were made under contract in 1895-96; a head block, 30 by 60 feet, was added to the outer end.

Repairs are usually required every year, last season the sum of $497.35 was spent in replacing the timber and sheathing on the sloping face of the outer block; making up ballast where washout or settlement had occurred; and building a temporary beach protection on a length of 240 feet, where the inner end had been carried away by the storm and high tide of November 14. The sum of $1,000 was expended on tug service and deepening the water over the bar, by the use of scrapers, worked during ebb tide. The total expenditure for this work, from July last to end of December is $1,457.27.

During the last fall, plan and specification were prepared for the construction of a breakwater on the eastern side of the entrance, the one built in 1881-84, having been completely destroyed through storms and old age; tenders were received up to May 17 last for the construction of a work 750 feet in length; the contract was awarded to Mr. George Matheson, for the sum of $13,275.

SAVAGE HARBOUR.

Savage Harbour, King's county, situated on the north side of the island, about three miles west of entrance to St. Peter's bay, and about five miles north-east from Mount Stewart junction, on line of Prince Edward Island railway, which by rail is twenty-two miles from Charlottetown.

The harbour while of considerable extent is in general shoal, and its entrance is obstructed by a shifting sand bar, usually carrying about 3 feet at low tide with rise of 3 feet at high water spring tides. The position of the channel is not permanent being changed by storms, and at times more than one channel is formed through the beach.

To prevent storm tides from breaking over the beach and carrying sand into the harbour, brush hurdles were built during the past winter along western side of beach, for a distance of 4,500 feet; it remains to be seen what benefit they will be in making up the beach, as no storm tides of any importance have occurred since their construction. The total amount expended up to June 30, was $1,006.

SOURIS HARBOUR.

Souris harbour, King's county, is situated on the south-eastern side of the island, about sixteen miles west from East Point, and is most important as a harbour of refuge and place of shipment, for both of which it has been rendered available by the breakwater built and maintained by the Dominion government.

The work, which was commenced in 1875, has now a length of 1,250 feet. It being of different widths, forms and construction, may best, for the purpose of description, be divided into three sections or portions, viz., inner section, 290 feet long and 30 feet wide, built of close-faced timber, plumb-faced on the sides, and having on the seaward side, a protecting stone slope; the work stands in an average depth of 7 feet of water at low tides; middle section, 530 feet long, averaging 65 feet wide, also of close-faced square timber, but on the seaward side having the upper 10 feet sloping 1 to 1, this section stands in an average depth of 17 feet at low water, and, during the past three seasons, has been having a stone protection slope formed on its seaward side; on the outer or third section, 390 feet long, 24 feet wide, and has on the seaward side a protection of stone, extending to within 3 feet of the top, and sloping 3 to 1, its end terminates with a block 40 x 80 feet, constructed of close-faced creosoted timber, standing in a depth of 23 feet of water at low spring tides.

During the fiscal year ended June 30, 1905, the work of protecting the middle section with a stone talus was continued, about 1,000 cubic yards of stone were deposited on its seaward face. Some repairs were also made to the flooring, stringers, &c., of the outer section.

The total expenditure for the last fiscal year is $4,598.37.

WEST POINT.

West Point, Prince county, is situated on the north side of Egmont bay, on the eastern shore of Northumberland strait, about fourteen miles from O'Leary station, on line of the Prince Edward Island railway, and about thirty-five miles by water from Summerside harbour.

A wharf was built at that place by the local government many years before confederation, to give some shipping facilities to the district, there being at the time no wharf or shipping place between Summerside and North Cape, where vessels of any size could call, a distance of about sixty miles. The wharf, which was assumed by the Dominion government in 1884, is said to have proved of much benefit up to that time, but then received serious damage on the breaking up of the ice, and remained in bad condition until 1898, when it was thoroughly repaired by the department. At that time wharf had a length of 620 feet, width of 30 feet, and extended out to a depth of 7 feet at low water, or of 11 feet at high water springs, which here rise 4 feet.

For the purpose of obtaining a better depth of water, an extension of 100 feet was built in 1901, reaching out to a depth of 9 feet at low water; but this has since shoaled to about 7 feet on the bar that has to be crossed for its approach, while

settlement occurred in the outer part of the new work. The work of levelling up was commenced in the spring of 1904, and was completed by the end of July last, at a cost of $491.55. The total for levelling and close-piling of the 100 feet extension is $1,931.30.

WOOD ISLANDS.

Wood Islands, Queen's county, are situated about thirty miles south-east of Charlottetown, and fifteen miles to the westward of Cape Bear, and are the most southerly portion of Prince Edward Island. Originally two small islands, they are now connected together, as also to the shore by sand beaches; a sand spit extends out from the shore to within 300 feet of what had been the eastern island.

The formation of a shipping place was commenced here in 1859, by the provincial government, but as at no time were the works in good condition, little, if any good resulted from them until in 1894, when reconstruction of the northern breakwater was effected by the department, and the southern one repaired. This latter work has since been extended, having now a length of 950 feet. The northern breakwater is 2,500 feet long.

After the extension of the southern breakwater, the increased scour being in danger of undermining it, close piling was put in different parts of the seaward face, as well as brush mattresses filled with stone.

During the past fall the sum of $249.93 was so expended on a length of 200 feet of the inner part of the breakwater to protect it against scour.

NEW BRUNSWICK.

ANDERSON'S HOLLOW.

Anderson's Hollow, is a cove of Salisbury bay, on the northern side of Chignecto channel, in the Bay of Fundy.

Spring tides rise 40½ feet; neaps, 32½ feet.

The breakwater wharf at this place was begun in 1879, by the construction of a detached block 550 feet from the shore, with which it was afterwards connected. In August 1885, the work was 290 feet in length, and three years later was carried to the shore. The structure, 25 feet wide on top, was originally 27 feet high at the outer end, but the bottom having been raised by the accumulation of the littoral drift, the height is now 3 or 4 feet less. It is built of round crib-work, lightly battered on the inside, but sloped at the rate of ½ to 1 and sheathed on the weather face.

The breakwater was damaged by storm on November 21, 1895, when a small lighthouse, placed on the outer end, was swept away, together with part of the break, while some of the top work at the head was simultaneously shaken and started.

In 1895-96, a small sum was applied to bolting loosened timbers for temporary security.

During the fiscal year 1896-97, the inside face of the wharf at the outer end, which had received a heavy list in the storm of the previous year, was taken down and rebuilt for a distance of 75 feet on top and 44 feet on the bottom.

The list was taken out, the new face being carried to a height of 15 feet in order to level the top, and new covering was laid for a length of 75 feet. Seventy feet out of 110 feet of dismantled break were reconstructed, and fenders were placed on the inside of the new face.

In 1898-99, by an expenditure of $121.31, twenty-seven pieces of new sheathing were laid and bolted to the sloping face ; a new cap and face-timbers were inserted, and the gap in the break, 40 feet long, left unfinished at the time of the previous repairs, was built up with four tiers of timber, strengthened with knees.

In 1900-01 the break-timbers, which had been started up from 3 to 9 inches by storms for a distance of 290 feet, were restored to position. For 25 feet at the outer end, the break was raised one tier ; 8 bridles, 9 inches square, were placed between the knees of the break for a distance of 100 lineal feet, 3 new pieces of 6-inch sheathing were placed in the sloping face, and loose planks were secured with bolts. Through the shoal obstructing the work on the inside, a channel 300 feet long, 35 feet wide and 5 feet deep was made by means of a wheel scraper. It was found, however, that the shoal formed again rapidly with the recurrence of any south-west swell. A groyne, 50 feet in length, made of piling and 9 inch timber, was built on the outside of the work, in order to check for a time the accumulation of littoral drift on the inside.

During the year 1901-02, new sheathing, 6 inches thick and from 22 to 26 feet long, was laid and secured with ¾-inch bolts at different places along the weather face of the outermost 190 feet. Additional bolts were also driven to secure the old and loosened sheathing ; while 71 pieces of new covering, 6 inches thick, were placed on the top of the work.

During the year 1902-03 the weather-face of the outer block, 100 feet long, having become decayed was cut down nearly to the bottom and rebuilt for a width of 13 feet with heavy timbers, secured in great measure with screw bolts, the outside being sheathed with 9-inch spruce. More than half the covering of this block was renewed and a new break was built 3 tiers in height for 26 feet, 2 for 61 feet and one tier for 13 feet in length. The covering was patched on other parts of the work. Four new fenders were placed, and the cap was renewed for a length of 47 feet. An extension of 50 feet for which foundations were excavated through the shoals to the rock, was begun and brought up to a height of four tiers.

During the fiscal year of 1903-04, the break on the outer block was completed and the sheathing was fully bolted. An extension, 50 feet long, and 27 feet wide on top, was begun and brought up to within 2 tiers of the finished top. The sheathing, fenders and covering yet require to be applied to complete this extension. The shoal was excavated sufficiently to make beds for the shipping.

In 1904-05 the extension was completed, sheathed, covered, ballasted and fendered; one new ladder was made and placed in position ; a quantity of sheathing was rebolted; five new fenders were placed; 700 lineal feet of pieces of covering were laid; 35 feet of new fenders were placed, and one new mooring post was put in, and the break for 72 lineal feet was rebuilt. The steep approach to the wharf was besides improved by lowering the rock-cutting 4 feet, by widening it to 14 feet and by making an embankment 21 feet wide, supported on both sides by retaining walls of stone, each 33 feet long, 9 feet in mean height, and 2½ feet in mean thickness, containing 55 cubic yards of dry masonry.

Like many other works in the Bay of Fundy, Anderson's Hollow crosses the direction of the flood stream and of the prevaling winds; in consequence, an accumulation of littoral drift is found on the south-west side, which travels around the end, and is deposited under the lee of the breakwater, forming a shoal, which is an obstacle to vessels.

The expenditure during the fiscal year 1904-05, was $1,597.90.

The total expenditure to June 30, 1905, is $37,964.32.

BATHURST.

Bathurst, the shire town of Gloucester county, is situated at the head of Nepisiquit bay. It is a station on the Intercolonial railway, distant one hundred and twenty-two miles north of Moncton, and the western terminus of the Caraquet railway.

During 1901-02, the provincial government wharf, on the lower side of the bridge between Bathurst and Bathurst village, was transferred to the department.

The work of repairing and partly reconstructing this wharf was begun in the spring and finished in the autumn of 1902. As completed the wharf is 174 feet long and 35 feet wide on top.

In October, 1904, four piles which had started out from the wharf, about 1 to 3 feet, and on which vessels were liable to catch and sustain damage, were cut off at the level of the bottom, i.e. about 6 feet below low water, at a cost of $25.

The total expenditure up to June 30, 1905, is $3,090.31.

BELLIVEAU.

Belliveau is a farming settlement on the eastern side of the Petitcodiac river, fourteen miles below Moncton, and nearly opposite Hillsborough in Albert county.

The department constructed a wharf here in 1888, of round cribwork, 233 feet long, 24 feet wide on top and 23 feet high at the outer end, to replace a work destroyed in 1869, and to afford facilities for shipping lumber and produce and for landing supplies.

Since its construction no expenditure has been made on the work, but lately the top has been so much out of repair as to render the wharf unfit for use.

In 1903-04, repairs were commenced. The decayed timbers of the top were removed and new cross ties and face timbers and an extra top face timber placed. The interior, for a length of 135 feet from the outer end, was filled with 3½ feet of brush covered for a length of 19 feet with about 9 inches of stone. One hundred and twenty cubic yards of stone were procured towards completing the repairs.

In September and October, 1904, the brush and stone filling was completed, and one foot of marsh mud and gravel was placed over the top. A new ladder was built and six ring bolts placed. The filling having settled during the winter, 7 inches of additional gravel was placed over the wharf in June, 1905, and two broken ring bolts were renewed. A bed for vessels was also constructed 76 feet long and 20 feet wide, along the lower side. The outer 10 feet of the bed was built of cribwork three tiers high. The inner 66 feet was formed by excavating the mud to an average depth of 3 feet.

The expenditure for the fiscal year 1904-05, was $298.93.

The total expenditure to June 30, 1905, was $3,649.20.

BLACK RIVER.

At Black River, a small cove on the Bay of Fundy, twelve miles east of St. John, where spring tides rise about 25 feet, a breakwater or wharf of square cribwork, 155 feet long, 27 feet wide, and 30 feet in extreme height, was built by the department in 1879, for the use of coasting vessels.

Between 1891 and 1893, the work received small repairs, and the total expenditure up to June 30, 1898, amounted to $4,407.92, $3,907.40 of which may be charged to construction, and improvements, and $500.52 to repairs.

During the year 1898-99, a sum of $450 was expended in replacing thirty-six fenders, in taking up and re-laying the covering, in building ladders, &c.

For some years no shipments were made at Black River; of late, lumber cut by portable mills in the neighbourhood has been loaded at this wharf.

Heavy rains in the summer of 1904 scoured the road and washed down quantities of sand and stone on the top of the wharf, completely covering it to a depth of six inches at the outer end, and three feet at the inner end. In 1904-05, this was cleared off, and the approach was pulled down and rebuilt for a height of thirteen tiers.

The expenditure during the fiscal year 1904-05, was $303.79.

The total expenditure to June 30, 1905, is $5,161.71.

BUCTOUCHE.

Bouctouche, with a population of between 600 and 1,000, is situated four miles above the mouth of the Buctouche river, which empties into Northumberland straits, twenty-two miles south of Richibucto and seventeen miles north of Shediac.

In 1884-86 the department constructed a wharf here of round timber, fendered with piles about 300 feet long and 40 feet wide, with a depth of 17 feet at low water or 21 feet at high water spring tides at the face. The work is parallel to the shore and immediately below the road bridge spanning the Buctouche river. A siding of the Moncton and Buctouche railway runs close to the back of the wharf throughout its length.

In 1894 the wharf was badly damaged by fire. During the following year it was partly repaired.

Between 1899 and 1901, thorough repairs were made to the upper 162 feet section of the wharf. Instead, however, of rebuilding of cribwork, pilework was substituted in order to keep the weight of the superstructure off the worm-eaten timbers below and thus avoid crushing.

In 1903-04, the remaining part was repaired in the same way. The inner 15 feet of the whole wharf was filled with brush, stone and earth and graded approach made to the road bridge. The approach to the street was also repaired for a length of 128 feet with new covering and caps.

In October, 1904, the work was levelled where the grading had settled, by the addition of earth and stone.

In the spring of 1905, a fire which burnt several houses in Buctouche also destroyed a considerable part of the approach from the street. The repairs rendered necessary consisted of rebuilding three out of the four cribs supporting the roadway, laying 87 feet of new 4-inch covering 17 feet wide, and 170 feet of cap, besides stringers and corbels.

A quantity of 6-inch creosoted plank was obtained for close piling the face of the wharf.

The expenditure for the fiscal year 1904-05 was $1,885.17.

BUCTOUCHE HARBOUR.

Buctouche Harbour is separated from Northumberland straits by a sand beach from six to seven miles long. At the southern end of the beach is the entrance to the harbour. The northern end, off which are important fishing grounds, is connected with the mainland.

The inhabitants of the northern end of the harbour are practically debared from outside fishing by the distance from the village around by the harbour entrance to the fishing grounds, and the boats on the outside shore have now no shelter during storms and are frequently wrecked. It is therefore proposed to make a cut through the beach at its northern end, its narrowest point, the width there being only about 500 feet. Breakwaters will be built on the seaward side to maintain the cut, and stake and brush fences along the low points of the beach, to cause an accumulation of sand.

During 1904-05, a fence of breastwork was built northward from the proposed cut for a length of 1,585 feet. This fence is composed of pickets, 7 to 8 feet long driven in two rows, 1 foot apart each way. Brush was placed transversely below and longitudinally above, between the pickets, pressed down and secured by narrow boards nailed across the tops of the pickets. Materials for the breakwaters and for a continuation of the fence were also obtained.

The expenditure for the fiscal year 1904-05 was $2,027.17.

BURNT CHURCH.

Burnt Church is a farming, fishing and lumbering settlement, on the north shore of Miramichi bay, 22 miles north-east of Chatham. The Miramichi Steam Navigation Company's boat calls twice daily during the season, and the place is much used as a summer resort.

During 1899-1900, a contract was let for the construction of a wharf 1,180 feet long, composed of a shore block 200 feet long and 20 feet wide; 23 blocks, 21 feet long and 20 feet wide, placed 20 feet apart, and a pierhead 60 feet long by 40 feet wide. The whole was constructed of round timber in open cribwork, topped with 12 x 12 inch stringers and 4-inch plank. The work was completed on September 15, 1901.

During 1903-04, complaints having been made that a dangerous rock lay in the path of steamers approaching the wharf, an examination was made and a boulder found weighing about 10 tons, lying 300 feet above the wharf and 50 feet outside the range of the pierhead. A blade broken from a steamer's propellor was found beside it. With the aid of a diver, the boulder was blasted and removed. Thirteen fenders were placed on the outside face and corners of the pierhead, to prevent damage to the steamer through catching on the face or on the iron straps at the corners. The outermost span of the wharf was also closed to give security to boats lying inside the pierhead, by placing 3 longitudinals one above the other between the blocks and spiking 3-inch hardwood plank close laid vertically to each side.

During 1904-05 the batter at the ends of the pierhead was reduced from 1 in 2 to about 1 in 5, to make the ends as well as the front available as berths for vessels. By means of longitudinals and uprights the top of the work was built out. Eleven hardwood fenders were then placed, 5 feet 6 inches centre to centre, at each end, and between them the work was sheathed with 3-inch hardwood plank. Gangways were also cut out of the cap timbers at both ends, and the slope of the slip, in the front face, was reduced. The second span from the outer end was closed similarly to the span closed in 1903-04, and 4 uprights were added at each span, to hold the longitudinal timbers in place. The cap timbers and fenders throughout the wharf were coated with carbolineum.

The expenditure for the fiscal year 1904-05, was $600.02.

The total expenditure to June 30, 1905, was $15,309.92.

CAMPBELLTON.

Campbellton, an incorporated town of about 3,000 inhabitants, is situated on the southern side of the Restigouche river, 14 miles above Dalhousie and 6 miles below the head of the tide. It is a station on the Intercolonial railway and an important deal port from which, during the calender year 1904, were shipped 22,172,000 F.B.M. of deals, 7,892 M. of laths and 24,781 M. of shingles.

For the reception of the ballast of vessels engaged in the deal trade, the department in 1889, constructed a block, 140 feet long and 34½ feet wide on top, of close faced cribwork, 108 feet below what was then known as the Ferguson wharf. It was afterwards covered for use as a wharf and in 1892, another block of similar construction and width was built to close the opening between the two works, giving a total frontage to the departmental wharf of 250 feet, with a depth of 11 to 20 feet at the outer face. After the construction of the second block, the Ferguson wharf was sold to J. P. Mowat, and subsequently by him to Kilgour Shives.

As access could only be had to the departmental work by traversing the Shives' wharf, steps were taken in 1901, to acquire the latter, and as it was in need of repairs, materials were procured at a cost of $2,224.32 during the same year, to effect such necessary repairs, but the work was not commenced as the property had not been purchased.

During the fiscal year 1902-03, the Shives wharf became vested in the Crown. The sum of $226.50 was expended during that year in caring for and looking after the timber procured for repairs.

During 1903-04, the repairs of the Shives' wharf were begun on the outside face 90 feet long, and for a length of 46 feet on the upper or western face. The old work was torn down to near low water level, and 23 sets of walings were bolted to main piles, on the face and to posts inside set on sills, placed on the old work. A ballast

floor was laid on the lower walings and covered with 8 feet of ballast. The whole was covered with 6-inch plank 18 feet wide on the front face and 15 feet wide on the upper face, and close piling was driven between the main piles. The inner portion of the wharf was graded level with the flooring with stones and earth. A new pile driver was also built.

In 1904-05, these repairs were completed, the work done consisting of driving 18 close piles, bolting 79, and trimming 90 ; placing 40 short pieces between the piles, above the tops of the walings, and two mooring posts. A small amount of earth was also placed on the inner portion of the wharf to complete the grading. Material costing $783.55 was obtained for continuing the repairs of the western face in to the shore.

On October 11, 1904, a contract was entered into for the construction of a deep water extension to the present government wharf, 304 feet long by 35 feet wide, connected with the old work by a span 15 feet wide on the centre line, which will increase the frontage of the government wharfs a total distance of about 322 feet. The work is to be built on a foundation dredged to 22 feet at low water. The contract price is $35,300.

Construction was begun on June 12, 1905, and by June 30, one crib, 140½ x 41 feet at bottom, had been built to a height of 12 feet 3 inches.

The expenditure for the year amounted to $42,353.86.

FERRY LANDING—CAMPBELLTON.

Between 1889 and 1891, the department constructed a ferry wharf about 400 feet above the Shives' wharf. On account of the strong currents there and its outer end being dry at low water, this wharf was but little used and is now very much out of repair.

The ferry boat has since been using a private dock and slip, opposite the central part of the town. In 1903-04, the slip and sufficient wharf frontage also a right of way to it, were acquired by the department.

In 1904-05, a new slip 35½ by 60 feet was built of cribwork filled with ballast and covered with 4-inch plank, to replace the old slip which was out of repair and did not extend into deep enough water. The roadway approach to the slip was also widened to 35 feet, involving an excavation, chiefly of rock, about 190 feet long, 12 feet wide and 4 feet deep. A small pile protection work was also built at the upper corner and seven fenders bolted to the lower corner of the dock, for the protection of the ferry boat when entering.

The expenditure for the fiscal year 1904-05, was $573.93.

CAPE TORMENTINE.

Cape Tormentine is situated on the south-western side of Northumberland straits at the extreme eastern end of Westmoreland county. It is the terminus of the New Brunswick and Prince Edward Island railway, and the nearest point of communication between Prince Edward Island and the mainland, the distance being nine miles.

To form an artificial harbour for purposes of interprovincial communication between the island and the mainland during the winter, a breakwater pier was constructed by the department between 1886 and 1892.

The structure comprises a straight pier, or approach, 2,500 feet long, the first 1,300 feet of which is a rubble mound 20 feet wide on top with slopes of 2 to 1, and the remainder close-faced cribwork 30 feet wide on top and a pierhead and return of close-faced cribwork, each 400 feet long and 40 feet wide from the base up to a little above low water, then decreasing to 30 feet at the top which was originally 4 feet above high water spring tides. Between low water and the top of the work, the head and return presented a sloping face to the east and south sheathed with hardwood. The whole incloses a basin or harbour of about four acres in area with depth, up to

the autumn of 1892, of 13 to 15 feet at low water, but increased since then by dredging over parts, to a depth of 18 feet.

Spring tides rise 7¾ feet and neaps, 3¼ feet.

Owing to the ravages of the teredo, repairs became necessary to the timber section of the work soon after its completion and have since been carried on annually. They have consisted mainly of renewing the face timbers and sheathing of the sloping faces of the pierhead and return, protecting the north and portion of the south faces of the approach and about 300 feet of the outer face of the head with large and small stone, and driving close-piling along a portion of the south side of the approach.

During 1901-02, a temporary quay face 205 feet long was constructed of piles driven 4 feet centre to centre and hardwood walings and cross-ties, along the outer or south face of the 'return' for the steamer *Stanley* plying between Cape Tormentine and Prince Edward Island during the winter. A combined station and freight shed, 100 by 25 feet, was also built on the 'return'; 436 creosoted piles were driven generally 2½ feet apart, along the harbour sides of the pier and 24 feet to protect the new quay face.

In 1902-03, the remains of the old slope, at the south-east corner of the pierhead, were replaced by a structure composed of double close-piling, seventy-three piles in all, and walings, filled with stone, covered with 4½-inch plank and secured outside with four iron straps. The work of raising and levelling the top of the timber portion of the breakwater, which had settled considerably, was also begun ; new face timbers, cross-ties and stringers being added for 750 feet of the approach to bring the top of the flooring 4 feet above H.W.O.S.T. The timbers were treated with carbolineum.

During 1903-04, this work was continued throughout the approach and for part of the pier head in a similar manner except, on the pierhead piles were driven 5 feet centre to centre, inside the sloping face and screw bolted to face timbers and cross ties. On a section of the pierhead 49 feet long, next the corner rebuilt in 1902-03, the old timbers were removed nearly to low water level on the outside, and the work was built with a vertical face, consisting of a row of piles 5 feet centre to centre to which were bolted four walings and three sets of cross-ties, tied into the old work, protected by forty-two creosoted piles driven close, and fully ballasted and covered with 5-inch plank. The top was levelled at 4 feet above H.W.O.S.T. Ten hardwood piles were also driven between the corner and the creosoted close piling. A movable platform, 7 by 70 feet, was built on the pierhead for the winter service and taken down in the spring. Slight repairs were made on the freight shed and return.

During the fiscal year 1904-05, the 49-foot section of vertical face on the pierhead was completed, a cap-timber and mooring post being placed, the creosoted close-piling trimmed off and bolted to the cap, and continued northerly 45 feet. The new section was completed except for close-piling, ballast and covering. On the return, where the old slope was partly carried away, the work being eaten away and undermined by the teredo, a length of 50 feet, at the south-west end, was rebuilt in the same way and completed, except for close-piling, ballast and covering. A further length of 50 feet of the same work was begun, for which the main piles (10) were driven and two walings and one tier each of cross ties and longitudinals placed. Sixty-three of the quay face was rebuilt permanently, being faced with creosoted close piling and filled with ballast. Along the remainder of the quay face 58 feet of new bridles were placed between the old fender piles. The levelling of the pierhead was completed over the remaining length of 250 feet, of which 60 feet required only laying the covering over the work levelled in 1903-04. Two new mooring posts were placed. A steel plate, 12 feet long and 26 inches wide, was bolted around the north corner of the pierhead, and eleven hardwood fenders were placed on the approach near the same corner, to protect the raised work. Five hundred and eighty-eight cubic yards of large stone were procured for the stone slope, along the north side of the approach, and 2,306½ cubic yards of small stone, which was partly mixed into the large stone and partly placed inside the work. A temporary freight plat-

form, 85 x 8½ feet, was built for the winter traffic and removed in the spring, and a board track laid, 67 x 8½ feet, between the slip on the quay face and the freight shed. Slight damages to the freight shed caused by a storm were repaired. Eighty-two thousand seven hundred and sixteen F.B.M. of 12 x 12 creosoted close-piling were procured.

The expenditure for the fiscal year 1904-05 amounted to $19,998.34.

The total expenditure to June 30, 1905 is $333,298.61.

CARAQUET.

Caraquet, Gloucester county, a thriving fishing village, is situated on the southern side of Bay Chaleur, forty-two miles east of Bathurst and twenty miles northwest of Shippegan, the eastern and western termini of the Caraquet railway, on which, with the exception of Bathurst, Caraquet is the most important station.

For the purpose of establishing a deep water terminus for the shipment of lumber from Gloucester county, a contract was entered into in March, 1902, for the construction of a wharf at Caraquet, 1,700 feet long, with a depth along the outer 300 feet of 22 feet at low water. Spring tides rise 6 feet.

The work is to consist of an approach or shore block 255 feet long and 25 feet wide on top, 25 blocks 25 feet square, 26 spans of 20 feet and pier-head, 300 feet long and 40 feet wide. It is to be constructed of round timber, open cribwork filled with ballast, the openings to be spanned by double 12 x 12-inch timbers and the whole finished with 4-inch covering and 10 x 12 caps. The contract price was $59,990.

The work of construction was commenced on July 7, 1902, and at the close of the fiscal year 1902-03, had progressed as follows :—The cribwork of the approach and blocks Nos. 1 to 5, inclusive, were completed, ready to receive the corbels and stringers; block No. 6 was constructed to within one tier of cross-ties of the required height, and blocks Nos. 7, 8 and 9 were built eight tiers high and placed in position.

At the close of the fiscal year 1903-04, the cribwork of the approach and first ten blocks was completed ready to receive corbels and stringers; the cribwork of block 11 was built to within three tiers of the top; of blocks 12 to 19 to full height; of blocks 20 to 23 to about 2 feet above low water level, and of block 24, nine tiers high.

A section of the pier head, 50 feet long, was built nineteen tiers high and a section, 100 feet long, to a height of four tiers.

At the close of the fiscal year 1904-05, the cribwork of the approach, blocks (25) and a 100 foot section of the pierhead had been built to full height. The cribwork of the pierhead sloped downwards in the next 126 feet to about 4 feet above low water. The last section 74 feet long, had been sunk in place and half filled with stone. Fenders were placed complete on the approach, first sixteen blocks, and first 50 feet of the pierhead, corbels, stringers and covering were laid, from the shore block to the end of the eighteenth block, and outside stringers on the shore block; corbels were also placed on blocks twenty to twenty-five, stringers on blocks twenty-one and twenty-two, and stringers and covering from block 23 out to 50 feet beyond the inner end of the pierhead; the first 60 feet of the pierhead was sheathed with hardwood down to 2 feet below low water level.

The expenditure for 1904-05 was $31,539.

Total expenditure to June 30, 1905 is $49,224.25.

CHANCE HARBOUR.

Chance harbour is a cove situated on the Bay of Fundy, eighteen miles west of St. John.

The timber required to construct a small breakwater at this place was delivered in the spring, and the work was begun. By the end of the fiscal year, the outer end

had been built to a height of nine tiers, and ballasted, the bottom tier is 80 feet in length.

The expenditure to June 30, 1905, is $2,875.54.

CHOCKFISH RIVER.

Chockfish river empties into Northumberland straits, about midway between the entrance to Richibucto and Buctouche harbours.

A sand beach extending from the north had rendered the entrance to the river circuitous and shallow. To produce a straight and deeper channel and a safer entrance for fishing boats, the construction of a dam was begun in the autumn of 1901, to close the deflected channel 400 feet south of the original river mouth. It was built from the mainland a distance of 130 feet, the channel shifting outwards around its end at the same time. The dam consists of a rubble mound 7 feet wide on top laid on brush mattresses, through which were driven two rows, 7 feet apart, of piles spaced 5 feet centre to centre longitudinally.

In 1902-03, construction was commenced on the sand beach and continued shorewards to meet the old work, and an extension 27½ feet long, of lighter construction, was built at the inner end of the latter, giving the dam a total length of 356½ feet. At the same time a trench was cut through the beach, about 300 feet north of the dam, which, under the influence of spring freshets, enlarged to a channel about 70 feet wide with 8 to 9 feet of water at spring high tide, making a considerable improvement over the old channel.

Owing, however, to the heavy sand drift from the north, the channel soon began to move southward. Therefore during 1903-04, a breakwater was built running southeasterly along its northern side. The breakwater consists of an inner length of 48 feet, formed of posts and cross-ties (eight bents) to carry a light tramway, with brush and stone between to catch the drifting sand. A length of 348 feet constructed of two rows of piles, 6 feet apart centre to centre, each way, connected by cross-ties, one to each bent, and two walings, filled between with brush and stone, and with a slope of the same on the seaward side; and an outer section, 120 feet long, constructed of three rows of piles, the outer driven close and the two inner, 6 feet apart longitudinally, with cross ties, one to each bent, and four walings. The width, over all, of this part is 11 feet 6 inches. The interior was filled with brush and stone with the exception of twelve bays which still required an additional foot of stone.

During the fiscal year 1904-05, a second breakwater 132 feet long was built on the south side, extending from the dam towards the outer end of the north breakwater. It is similar in construction to the outer 120 feet of the latter, except that four fascines were laid under the loose brush throughout its length. Timber 10 x 12 was used for the cross-ties and 10 x 10 for the four walings. A trench was also cut through the bar which had formed about the end of the north breakwater.

The expenditure for the fiscal year 1904-05, was $1,189.50.

The total expenditure to June 30, 1905, is $5,954.39.

DALHOUSIE.

Dalhousie, Restigouche county, is situated on the Restigouche river, 14 miles below Campbellton. It has a population of over 800 and is an important deal port. The harbour of Dalhousie, one of the best in the province, being well sheltered and having a depth of from 4 to 7 fathoms at low water.

At the terminus of a branch of the Intercolonial railway, the department constructed in 1887 a wharf 300 feet long, 22 feet wide on top and giving a depth of 14 feet at low water. This depth has since been reduced through ballast having been washed out of the work.

On August 1, 1904, a contract was entered into for the construction of a deep water wharf, immediately above the present government wharf. It is to be 304 feet

long and 35 feet wide, built on a foundation dredged to 24 feet at low water. The contract price is $42,000.

Expenditure during last fiscal year, $30.42.

DIPPER HARBOUR.

Dipper Harbour is a post settlement on the Bay of Fundy, St. John county, 20 miles from the city of St. John.

During the fiscal year a contract was let for the construction of a new breakwater, the work to be 335 fet in length and 43 feet high at the outer end, intended to replace an old breakwater, and to give shelter to fishing boats in the neighbourhood.

The expenditure during the fiscal year 1904-05, was $4,639.65.

DURHAM.

Durham, the most easterly parish of Restigouche county, has a population of 2,200, occupied in lumbering, farming and fishing.

To afford protection for the fishing boats, for which there is now no shelter between Petit Rocher, 15 miles to the east, and Heron Island, 10 miles to the west, and to facilitate the shipment of lumber, of which 3,000,000 feet B.M. are cut annually, a contract was entered into on June 20, 1905, for the construction of a breakwater at a point near the easterly end of the parish.

The proposed work will consist of an approach, 670 feet long and 20 feet wide on top, and a pierhead or 'L' 50 x 30 feet, measured on the top, the whole to be built of round timber sheathed, with the exception of the inner 70 feet, with hardwood plank.

The contract price is $17,700.

The expenditure during the last fiscal year amounted to $146.85.

EDGETT'S LANDING.

Edgett's Landing, in Albert county, is on the west side of the Petitcodiac river, two miles below the village of Hillsborough.

To replace an old provincial government work, destroyed by the Saxby gale in 1869, the construction of a wharf was begun twenty years later by the department, and was finally completed in the fiscal year ended June 1893. The wharf is 400 feet long, composed of an earthen approach 20 feet wide, and 50 feet in length ; round cribwork 250 feet and square cribwork 100 feet long. The head is 40 feet wide, 35 feet high and stands in 30 feet at high water ; it is dry at low water.

Spring tides rise 46 feet.

Renewal of the covering, which had become decayed, and levelling up of the stringers, which had settled, was begun in May, 1900, and completed in 1900-01.

In 1904-05, the upper works having become decayed, the outer block, 100 feet long, and 40 feet wide, was pulled down and rebuilt for three tiers in height; while the next stretch of 100 feet was also pulled down and rebuilt, excepting the top cross-ties, for the same height.

The expenditure in 1904-05, was $3,000.

The total expenditure to June 30, 1905, $13,340.75.

FORT DUFFERIN.

Fort Dufferin, built by the Imperial government to command the western entrance to St. John harbour, stands on high ground, immediately above the end of Negropoint breakwater.

In order to preserve from erosion by the waves, the headland crowned by the battery, this department begun in 1882, at tide-level a retaining wall of sheathed

cribwork, 430 feet in length, and in the following year constructed a further length of 303 feet. The work is exposed on the one hand to the force of the waves, and on the other hand to land slips.

In 1886-87, it was much disturbed by the sea and repairs were made in that and the following years, 205 feet of the original work being rebuilt. From 1887 to 1889 repairs were also made, and in 1890 the work was extended 100 feet.

General repairs were made in 1893-94. The work is from 7 to 14 feet wide on top, and about 9 feet in mean height. The crest for the whole length is surmounted by a break 2½ feet high.

During the year 1896-97, a gap 81 feet long in the break was repaired, 200 lineal feet of longitudinals were renewed inside, and 128 cubic yards of ballast were restored to the work; while the sheathing was patched at intervals along the face with hardwood planking. In order to raise the beach, and so protect the lower part of the face, toward the end of 1896, a groyne 40 feet long, 10 feet wide and 4 feet in average height, was built of hardwood piles, timber and stone. In 1897, extension of the cribwork a distance of 130 feet was begun, and by the end of that fiscal year had been brought within two tiers of the full height.

In 1897-98 the new extension was completed, ballasted and sheathed. Small repairs were also made to the sheathing of the old work.

In 1898-99 four groynes, in all 332 lineal feet, each built of hardwood piles, spaced 4 feet apart, driven from 9 to 12 feet into the bottom and planked with birch 9 inches square, securely strapped and bolted, were placed along the beach to protect the lower part of the sheathing of the breast-work; some ballast was also placed in the cribwork.

Ordinary repairs, comprising restoration of a breach in the face, ballasting and renewal of the sheathing, were made during the year 1899-1900.

In 1900-01, the face was sheathed for 145 lineal feet; ten piles were driven to restore, with the addition of cribwork, a breach 11 feet long; 62 lineal feet of large hemlock face-timbers were inserted; some loose piles were rebolted, and 373 cubic yards of ballast were placed in the work. At the upper end, the breast-work was repaired for a distance of 235 feet by placing a new tier of 12-inch cross-ties, 395 lineal feet of face-timbers, and by the insertion of 24 knees, with as many chocks, secured by screw-bolts.

In 1901-02, one hundred and thirty-six spruce piles, 26 feet long, were driven from 6 to 8 feet into the bottom for a distance of 108 feet along the face of the breastwork. In another place, for a total length of 126 feet the face was sheathed with 6-inch spruce, and the old sheathing was patched at intervals for a distance of 210 feet. A break 3 feet in height was also constructed of four tiers of spruce timber, supported at intervals of 10 feet by 21 framed braces, made of 8 x 8 spruce. Some brush was deposited at the back of the innermost block of cribwork, and beneath the adjacent groyne for the purpose of assisting the accumulation of silt and drift.

In 1902-03, the face of the breastwork was protected with close-piling for a length of about 178 feet, fourteen pieces of spruce sheathing were applied to the work and about 400 cubic yards of ballast were placed. An extension of the protection was made for a distance of 94 feet by driving close-piling, secured with double walings and stiffened by bracing fastened to piles driven 13 feet in the rear. The inside of this work was partially filled with brush and stone.

During the fiscal year 1903-04, a new block, 70 feet long and 20 feet wide of close-faced cribwork, was built at the inner end of the breastwork. The cap of this block is flush with the break of the old work.

In 1904-05 one of the angles of the work was sheathed with 6-inch plank; the braces and upper timbers, for a distance of 160 feet were painted with carbolineum avenarius; 450 cubic yards of stone ballast were placed in the work.

The expenditure during the fiscal year 1904-05 was $974.95.

The total expenditure to June 30, 1905 is $31,146.25.

FOX CREEK.

Fox Creek, Westmoreland county, is a village and farming settlement on the Petitcodiac river, three miles below Moncton. It has a population of about 350.

In 1880, the inhabitants assisted, to the extent of $850 by the provincial government, built a wharf 177 feet long and 40·3 feet wide, at a total cost of about $1,800. It was, however, built too long, projecting within reach of the rough waters of the tidal bore, which has made it impossible for vessels to lie there. To remedy this, and also to make good the whole top which had become decayed, repairs were begun in September, 1904.

The decayed timbers throughout were removed and a length of 35 feet was cut off the outer end to a depth of 20 feet. The next 40 feet were then rebuilt on top, with cribwork, to form a pierhead about 40 feet square. In the next 22 feet the cribwork was built up but decreasing in width to 16½ feet, which width was held for a further 7·7 feet. Three-inch covering was laid over all, seven mooring posts were placed in the work, and eleven fenders on the front face. From the cribwork shorewards, to the end of the public road, an approach 162 feet long, 15 feet wide and about 4 feet high was built, across the flats, of brush and earth covered with 6 to 9 inches of stone, with a low bank of stakes, brush and clay to protect it along the north side. In front a bed for vessels, 80 by 25 feet, was constructed, partly on the remains of the old wharf which was cut down, and partly of new cribwork filled with brush and stone. A stairway was built on the lower side of the pierhead. The work was completed on June 30, 1905.

The expenditure for the fiscal year 1904-05, is $999.80.

HOPEWELL CAPE.

Hopewell Cape ballast wharf near the mouth of the Petitcodiac, and the head of deep water navigation, is one of several works on that stream, intended for the convenience of shipping.

For the use of vessels proceeding to Moncton, Hillsborough and Dorchester for cargoes, the department, in 1883, began the construction of a ballast wharf of round cribwork, 300 feet in length, and 22 feet wide, which was completed in the following year. In 1885, the work was extended to the present length of 583 feet by an addition built of square timber. The covering, stringers and other upper timbers having become decayed, preparations were made in 1899-1900 (the appropriation being very small) for repairing the work by purchase of materials. By the end of that year a part of the timber had been delivered.

In 1900-01, the outer end for a length of 288 feet was rebuilt for a height varying from 4 to 5 feet. The top of the pierhead was also rebuilt.

By a fire, which destroyed part of the village of Hopewell Cape, the top of the inner end of the ballast wharf, 300 feet long, was burned. The fire obtained lodgment in the decayed internal timbers of this work, and was with difficulty extinguished in time to save the outer end of the wharf, which is built of square timber.

During the fiscal year 1903-04, the burnt timbers of the ballast wharf were removed, and the square cribwork was rebuilt from three to six tiers in height to the level of the stringers. The round cribwork was also rebuilt for a height of two tiers, and was brought up to the level of the under side of the stringers, the voids under the lower ballast floor being filled with stone. Brush mattresses were laid and the construction of a stone embankment, to replace 200 feet of the burnt cribwork, was begun.

In 1904-05, the restoration of the burnt work was completed, by the completion of the stone embankment, 200 feet long and 15½ feet wide on top, with laid slopes. The embankment was made by first placing stone beneath the lowest ballast floor of the burnt cribwork, by neatly laying the slopes of large stone, founded on brush mattresses, and by covering the work with small stone, topped with gravel. From the remaining 100 feet of round cribwork, the burnt and decayed timbers were removed,

and the work was rebuilt for an average height of two face timbers. For 83 feet the square cribwork was rebuilt and covered, for a mean height of 3½ tiers; six new mooring posts were put in; a ladder was placed against the side of the work, and the steps were repaired. A balance of $400 remaining was applied to placing stone and brush at the new wharf.

The expenditure during 1904-05, was $1,999.92.

The total expenditure to June 30, 1905, is $14,356.57.

HOPEWELL HILL.

Hopewell hill, Albert county, is situated on the Shepody river, an arm of the Petitcodiac, 14 miles from Hillsborough.

In 1902 and 1903, a wharf, 101 feet long and 40 feet wide, of round timber cribwork, was built by the department.

During the last fiscal year, the top of the outer block, and of the adjoining span, which had settled, was built up level; a bed for vessels, along the front of the wharf, was also built to a height of 8 feet.

The expenditure for the fiscal year 1904-05 was $691.09.

LAMEQUE.

Lameque, Gloucester county, is a fishing and farming settlement of about 375 inhabitants, on Shippegan island, on the eastern side of Shippegan harbour.

In 1899-1900, a contract was entered into for the construction of a wharf 990 feet long, consisting of an approach 220 feet long, 16 blocks 25 feet square, 20 feet spans, and a pierhead 30 x 40 feet, all of round timber open cribwork. The depth at the outer end of the wharf being 9.8 feet at low water. The contract was completed in January, 1903.

As it was found that the wharf did not afford sufficient accommodation for the numerous fishing vessels and foreign vessels in the fish trade that would make use of it, an extension to the pierhead southerly, consisting of a cribwork block 75 x 30 feet, was begun in September 1904, and at the close of the fiscal year had been built to a height of about 14 feet and sunk in place. The angle, between the last span of the approach and the projection of the original pierhead, was also filled in with stringers, covering and cap.

The expenditure for the fiscal year amounted to $3,999.80.

The total expenditure to June 30, 1905, is $15,330.93.

L'ETANG.

L'Etang, in the county of Charlotte, is one of the best harbours on the coast of New Brunswick, and according to the Admiralty sailing directions, one of the most convenient in North America, in point of entrance, capacity, shelter, depth and holding ground. The harbour is famous for sardines.

Spring tides rise 23½ feet.

In 1899, the department extended the provincial government wharf of block and span work by building a pierhead, 30 feet long, 20 feet wide and 25 feet high, standing in 20 feet at high water.

During the half year 1904-05, the second block of the old part of the wharf was raised by the addition of three cross-ties and as many longitudinals. Five rows of new stringers were laid for a distance of 60 feet, the fourth block was raised by the addition of one cross-tie; new covering was laid for a distance of 83 feet and the old covering was relaid for a distance of 31 feet, the repairs extending over a distance of

143 feet. The bents of the trestle approach to the pierhead were repaired by the renewal of five posts and the addition of 20 fenders.

The expenditure during the fiscal year 1904-05, was $252.45.

The total expenditure to June 30, 1905, is $735. 57.

LITTLE SALMON RIVER.

Little Salmon river, Albert county, a tidal inlet of the Bay of Fundy, fourteen miles east of Quaco, is the site of a mill, producing lumber to the value of about $25,000 annually.

The beach protecting this little haven, being in danger of denudation, a protection work, 430 feet long, with a groyne 92 feet long, of piles and planking, was built along the crest of the beach in 1902-03.

In 1904-05, two new groynes, each 90 feet long, were built, and the original one near the channel was repaired.

The expenditure for 1904-05 was $511.96.

LOGGIEVILLE.

Loggieville, in Northumberland county (or Black Brook as was formerly called), is a thriving village of about 600 people, on the southern side of the Miramichi river, six miles below Chatham, and is the terminus of the Fredericton branch of the Intercolonial Railway. A steamer of the Miramichi Steam Navigation Company calls here twice daily.

In 1901, a wharf was constructed under a contract, consisting of a stone approach 175 feet in average length and 20 feet wide on top, a span of 15 feet, and a pierhead of close-faced cribwork 40 x 25 feet. This work lies immediately below the so-called 'Bentley Wharf,' and projects 49 feet beyond the face of the latter.

During 1902-03, slight damages to the approach, caused by a storm and extra high tide, were repaired and a plank walk 3 feet wide was laid along it. A pile bulkhead, 18 feet long and 9 feet wide, braced with walings and ties, was built from the lower corner of the Bentley wharf to the inner end of the span of the departmental work, the whole space, 120 feet long and from 10 to 20 feet wide, between the two wharfs, was filled with brush and stone, the top was finished with gravel level with the top of the departmental wharf.

The Bentley wharf and a right of way from the public road were acquired in 1903-04. The outer and upper faces of the Bentley wharf were rebuilt with cribwork, covered, 12 to 16 feet wide, with 4-inch plank. The inner portion was filled with brush, stone and gravel to the level of the covering, making the whole from 3½ to 4 feet higher than before.

A new pile wharf, to fill the angle between the Bentley wharf and the departmental block and increase the frontage of the latter from 40 to 96 feet, was constructed for a width of 29 feet, covered with 4-inch plank and partly filled with brush and stone. Part of the piles were also driven and braced for the remainder of the wharf, and a bulkhead of piles and posts was built, to prevent material placed in the new work from sliding into the span behind the departmental block.

In 1904-05, an approach 505 feet long was built from the highway to the public wharf, consisting of 163 feet of grading and 342 feet of cribwork. The graded roadway is 22 feet wide on top with side slopes of 1½ to 1 and ditches on either side. The cribwork is 22 feet wide with sides plumb and consists of an average of two tiers of round timber, with six stringers, 4-inch planks and 10 x 10-inch caps on 3-inch chocks.

The pile wharf was also completed with a frontage of 56 and a depth of 49 feet. The outer main piles, the fender piles and the 6-inch sheathing between the pile-bents, is filled to from 3½ to 4 feet of the top with brush, stone and earth. The whole

is covered with 4-inch plank. To protect the creosoted fender piles, short hardwood fenders were bolted at their sides.

Several sunken timbers and a rock which were dangerous to vessels were removed from outside the wharf.

The expenditure for fiscal year amounts to $3,500.24.

The total expenditure to June 30, 1905, is $14,304.41.

LORD'S COVE.

Lord's Cove, Charlotte county, a small fishing station on Deer Island, is a port of call for steamers plying between St. Stephen, St. Andrews, Eastport and other points in Passamaquoddy bay.

To afford facilities for this steamer, the construction of a wharf was begun in 1900-01.

Spring tides rise 24 feet.

The wharf, without the approach, is intended to be a pile and trestle work, 328 feet long and 21 feet wide, with a pier head 33 feet in height.

During the fiscal year 1902-03, this wharf was extended to the back of the pier head, a length of 120 feet by driving twelve bents and by completing the laying of the covering and the cap. A gallows-frame ladder, and flight of steps were also made, in order that the public might make immediate use of the wharf.

The work was then 289 feet long, exclusive of the stone approach, 28 feet in length.

In 1904-05, the pierhead, 50 x 40 feet was built, to which seventeen fenders and fifty-eight short braces yet remain to be applied, the work is now 328 feet long and 21 feet wide, with a pierhead 35 feet in height. The wharf is approached by a stone embankment, 28 feet long, and a rock cutting 61 feet in length.

In 1904-05, materials for a movable slip were ordered. The expenditure during the fiscal year 1904-05 was $212.38.

MISCOU.

Miscou harbour, Gloucester county, lies between Miscou and Shippegan islands.

The population of Miscou island is about 500, occupied chiefly in fishing. About seventy-five fishing boats are owned in the island and there are eleven lobster factories.

On April 27, 1904, a contract was awarded for the construction of a wharf at this place. The work will consist of a shore block 200 feet long by 20 feet wide, eighteen blocks 20 feet square, nineteen spans of 20 feet square and a pierhead 40 x 30 feet. The contract price is $13,700.

Work was begun in May and by June 30, 1905, the cribwork of the approach had been built to full height. Blocks one to twelve had been placed and built from eight to six tiers high. The pierhead was begun and built three tiers high.

The expenditure for the fiscal year 1904-05, was $3,490.30.

The total expenditure to June 30, 1905, has been $3,564.02.

MUD COVE.

Mud Cove, Albert county, is an inlet of Grindstone island, in the Petitcodiac.

To shelter the boats of the lightkeeper and others, the construction of a small breakwater was authorized. Timber and iron for the work were procured during the fiscal year.

The expenditure to June 30, 1905, is $491.57.

NEGRO POINT.

Negro Point is a headland about 60 feet above high water mark, at the western entrance to St. John harbour, which is formed by the estuary of the River St. John, on the northern side of the Bay of Fundy.

Spring tides rise 25·33 feet. Neaps, 15 to 20 feet.

In addition to convenience of position for distribution by rail of cargoes landed at the city of St. John, the harbour is remarkable principally for great tidal range, and for consequent freedom from ice in the winter months. The harbour is open, broadly speaking, from south-east to south-west, but southerly winds are broken by Partridge island, and south-west waves are mitigated by Negro Point breakwater, while the foul ground, a shoal tailing down from the peninsula on which the city is built, must have more or less effect in moderating the force of the easterly seas rolling around Mispec point.

By Partridge island, a rocky eminence devoted to quarantine and light-house purposes, the entrance to St. John harbour is divided into east and west channels. In the former or main channel, a minimum navigable depth of 19 feet is found on the bar at low water at ordinary spring tides. Two hundred yards inside the crest of the bar, a depth of 5 fathoms is obtained in the narrow fairway, while higher up and between the most southerly of the principal wharfs on either side of the harbour (450 yards wide at that point), 12 fathoms are given in mid-channel. The west channel 10 to 14 feet deep at low water, and originally 1,200 yards wide, has been contracted to about as many feet in breadth by Negro Point breakwater, which extends 2,200 feet S.E. by S. from the headland so styled.

The reasons for undertaking this work are thus stated in the reports of the Minister of Public Works for 1875 and 1882 : '1875. This breakwater extends southeasterly from Negro Point at the western entrance of St. John. When completed it will extend a distance of 2,250 feet closing up the west channel to that extent, leaving, however, a width of 1,100 feet between the outer end and Partridge island. The object is to break the force of the seas which roll into the harbour of St. John during the south-west gales in the Bay of Fundy, and which render it dangerous and almost impossible at such times for vessels to make the harbour.

'1882.—South-westerly winds threw in a heavy sea through the western channel which rendered it difficult for vessels to make the harbour, as they were in danger of being carried on the foul ground on the eastern side of the channel. In the spring of 1875, a breakwater 2,250 feet long to partially close the western channel was begun, and in September 1877 completed'.

Reference to the chart will show that as long as the present opening remains, the object of the breakwater has been only partially fulfilled. In dealing with the reduction of the bar, a more cogent reason than improvement of shelter may be found for the extension of the work to Partridge island.

The breakwater consisted at first of a cribwork core, 30 feet wide at the base 15 feet wide at the top (5 feet above high water ordinary spring tides), protected on both sides by large stones sloping seaward at the rate of two to one, and landwards at the rate of one to one. In the month of February 1879, thirteen hundred lineal feet of cribwork were swept away to a depth varying between 13 and 19 feet from the top, the stones having been raked down by the wave-action to a slope more nearly resembling the angle of repose of the material. In 1880, temporary repairs were made, and in 1881 a contract, completed six years afterwards, was entered into whereby the lost cribwork was replaced by heavy stones, and the seaward slope made three to one. Even this flatter inclination proved too steep for stability ; consequently, notwithstanding their size, the stones, though smoothly laid, were soon displaced by the sea. A length of 50 feet of the breakwater extending at full height beyond a masonry pier, built under the same contract to support a beacon, was also swept away. From 1891 to 1894 desultory repairs were made by the addition of large stones, chiefly deposited about the end to prevent the light-house from being undermined.

In May and June 1895, four large blocks of concrete were placed for the same purpose in front of the base of the pier. In 1895-96, seven concrete blocks, founded about the level of low water neaps, were built in situ around a quadrant of the outer end to receive the foot of a slope proposed to be made of heavy granite blocks laid at the rate of four to one. The concrete blocks were from 59 to 91 tons each in weight, all but the heaviest being made in one tide. The granite pier was also reinforced by a semicircular skin of concrete 7 feet in average thickness and strongly battered, placed around the front, and brought to the level of high water springs. The footing blocks were 15 feet long, 12 feet wide and unless varied for the sake of foundation, three feet high in the face, sloping upward at a rate of four to one on the top. Each block was free to settle independently, but all were keyed together by splayed concrete joggles. Inside a part of the space within the quadrant, stones of the original work added to small granite were assembled and grouted, as far as funds permitted. This course was taken in default of the heavy granite (which would require special plant) necessary for the slopes of this breakwater, where weight is the great desideratum.

Pending consideration of works necessary for deepening the entrance to the harbour, which might possibly involve the extension of the breakwater, nothing more was done during the year 1896-97 (except the completion of the break at the shore end), than appeared requisite to protect the unfinished superstructure just begun, and to preserve the light-house.

To this end fifteen blocks of concrete, forming aprons, were laid in position at the outer end of the work, between October, 1896, and June, 1897. A quantity of stone which had been swept around the point of the breakwater from the seaward to the harbour side was also replaced in position. Some of this stone was laid outside the heavy footing blocks, built in the previous year, and some was applied to restoration of the crest of the work at the back of the lighthouse. Breaches carried below the level of high water had been made by the sea at five or six points in the rubble mound between the lighthouse and the shore. An illustration of the violence of the seas which assail Negro Point breakwater is afforded by the removal of a stone, which weighed five tons, a distance of 76 feet in one winter. A marine dynamometer secured to the masonry of the lighthouse records the wave force at 4,000 pounds and upwards per square foot.

In order to retain for natural protection, along the seaward face of the work, the littoral drift formerly swept by the waves over the top into the harbour, a break of piles, brush, stone and timber, 270 feet long, 8 feet wide, and 4 feet high, begun in 1895, was completed in 1896-97, and was also extended 140 feet along the timber work that year with good effect. As a result of the construction of the break, the foreshore has advanced seaward, while the beach has increased in height and breadth.

Besides the general accretion of the beach, a tongue of drift, observed after the erection of the break to be near the shore, has at the foot of the talus on the seaward side travelled 200 yards or more toward the outer end of the breakwater.

The formation of this spit, generally 10 feet wide and 2 feet high against the work, indicates that the drifting sand, gravel, shingle, &c., which formerly went over the breakwater into the harbour will in time afford important natural protection to the work, and will reduce the length of the face to be maintained.

During the year 1897-98, as a measure of precaution, 152 yards of granite were obtained and deposited about the lighthouse for protection during the winter, while stones previously removed by the sea were replaced in position.

The advance of the foreshore rendered necessary in that year the enlargement of the timber break, which was extended a distance of 80 feet along the breakwater.

A small groyne was also built for the purpose of obtaining some information as to the quality of the littoral drift near the shore end. To preserve the timber, the top of the piles and the knees of the break were given two coats of pitch.

One thousand and nineteen cubic yards of granite were supplied and laid in place in 1898-99; while 285 yards of the original stone of the work, displaced by the sea, were restored to position.

During 1899-1900 four hundred and fourteen cubic yards of granite were delivered and placed around the lighthouse. Six hundred and six cubic yards of dislodged stone were put back. Five concrete blocks, containing 52·1 cubic yards were also made in place.

In 1900-01, five blocks of concrete aggregating 54½ cubic yards were built in situ; 1,313 cubic yards of new granite were received and placed. While 1,893 cubic yards of the original stone of the breakwater, removed by the sea (which on November 8, 1900, made two clear breaches through the work), were restored to position. The timber break was also extended two tiers for a distance of 40 feet.

During the year 1901-02, four thousand six hundred and ninety-four cubic yards of the large stone, principally granite, together with 719 cubic yards of small stone, were delivered, and placed in position. A number of large stone of the original work, amounting to 1,713 cubic yards which had been dislodged by the sea, was restored to place by means of a floating steam derrick. Repairs were also made to the derricks and buildings.

During the fiscal year 1902-03, 4,603 cubic yards of large, and 600 cubic yards of small stone were delivered and placed at Negro Point breakwater. This material was chiefly applied to restoring the point of the breakwater to the original length; that is by extending it 50 feet beyond the lighthouse. Although the stones were of large size, averaging a little less than 1½ cubic yards (while some attained the bulk of 5·6 and even 7 cubic yards each), a part of the restored point was swept away by the heavy storms of the winter. Besides the new material added to the work, 2,201 cubic yards of the original stone of the breakwater, which had been dislodged by the sea were by standing or floating derricks shifted and replaced either on the point of the breakwater or in the gaps made in the crest. The covering of the cribwork was also patched in places, the plant overhauled, and a derrick for hoisting boats erected near the shore end.

Until the work has either been extended to Partridge island or has received a permanent superstructure, constant repairs will be required.

In 1903-04, twelve blocks of concrete, aggregating 417 cubic yards, were made in place. Before the concrete was made, 124 cubic yards of large stone, taken from another part of the work, were placed around the lighthouse for protection. The break was raised 2 feet in height for a length of 175 feet.

During the year 1904-05, 1,123 cubic yards of granite were delivered, a stone-breaker was hired, and the whole was crushed to the size required for concrete. Thirteen large blocks of concrete, aggregating 599 cubic yards were made in place; 519 stones averaging ¾ cubic yard each, which had been dislodged by the sea, were replaced in position; a boat landing was built of concrete; a lighter, 43 feet long and 15 feet wide, was built for transporting material from the shore to different parts of the work; a plank walk, 900 feet long and 4 feet wide, covered with two coats of carbolineum avenarius, was laid along the top of the works, below Fort Dufferin, to give access to the works of Negro Point; new derricks were made; the roofs of the buildings were repaired, and the plant maintained generally.

The total expenditure to June 30, 1905, is $547,405.35.

The expenditure during the fiscal year 1904-05, was $19,994.91.

PARTRIDGE ISLAND.

Partridge Island is a rocky eminence standing at the mouth of St. John harbour, and dividing the entrance into east and west channels. The island is devoted to quarantine and lighthouse purposes.

At the northern end of Partridge island, two narrow piers of cribwork, built many years ago, give shelter to the boat landing at the station. Between them, a substantial block of new cribwork, 50 feet long and 22 feet wide, begun and nearly finished in 1896-97 as a foundation for the disinfecting house was completed in the

succeeding year. A boat slip, intended for use at low stages of the tide, was partially built; a new mooring-post was put in, and minor repairs to the end of the west pier were made at the same time.

In the fiscal year 1902-03, the west pier of Partridge Island, 121 feet long and 17 feet wide, was raised by the addition of one tier of cross-ties, new stringers, covering and cap. A house 14 x 24 feet was built for the boat of the medical officer, and a new derrick, excepting the mast, was made for the purpose of launching or landing the boat, the weather being too rough in the winter to allow it to lie afloat.

From the east pier, 110 feet long and 20 feet wide, 11 fenders were removed and were replaced by new ones. The break was strengthened by the addition of seven new knees; the boat-shed was shifted; the derrick rebuilt and a new cap laid. The top was covered throughout with two thickness of 2-inch plank.

During the fiscal year 1903-04, the approach of round cribwork to these piers was reconstructed. This part of the work is 73 feet long on the centre line, 16½ feet wide on top and 14 feet high, with an additional platform 17 x 18 feet. The top was covered with hemlock plank and a hand-rail was put around it. Ballast floors 30 feet in length, composed of double deals, 3 inches thick, were placed in the west pier and covered with 4 feet of ballast. Five bays of the inner-face were sheathed to prevent the loss of ballast, for a height of 8 to 18 feet and the ballast, which had been washed into the slip and obstructed the boat landing, was removed.

In 1904-05, the faces of the piers were sheathed for a length of 110 feet; a slip was built, a gangway made, and the ladders were repaired. A small block for the landing of immigrants was built on the outside of the west pier.

The expenditure during the last fiscal year amounted to $3,127.98.

PETIT ROCHER.

Petit Rocher, Gloucester county, is a farming, fishing and lumbering settlement, on the south-western side of Baie des Chaleurs, twelve miles above Bathurst.

To provide shelter for the fishing boats of the district, for those crossing from Bonaventure county, P.Q., and for vessels engaged in lumber carrying and general trading in Baie des Chaleurs, a contract for the construction of a breakwater, was awarded on May 31, 1904.

The work will consist of a main breakwater, 209 feet long on the outside face, and an 'L' placed at an angle of 74° 30′ with the main part, 160 feet long on the outer face. The width on top will be 30 feet. At the nearest point the breakwater will be 450 feet from the shore, it will lie in from 12 to 19 feet of water, at L.W.O.S.T. The contract price is $32,900.

Work was begun on March 18, and by the end of the fiscal year, two cribs had been built and sunk in place, the first, 96½ feet long, 36 feet wide at the base and 21 feet high, filled to within a foot of the top with ballast; the second, 41 feet long, 35 feet wide at the base and 15 feet in mean height, about half filled with ballast.

In October, 1904, the road from the public highway to the shore, a distance of about 860 feet was graded, the excavation amounting to about 350 cubic yards; ditches were made on both sides of the road; 81 rods of wire fence were erected on the north and part of the south sides, and a bridge of 12-foot span and 20 feet wide, resting on cedar abutments, was built where a stream crossed the road. In the spring of 1905, the new road was gravelled and slight repairs were made to the fence.

The expenditure for the fiscal year amounted to $7,195.91.

POINT DU CHENE.

Point du Chene, Westmoreland county, lies on the western side of Northumberland straits, on the south-east side of Shediac harbour. It is the terminus of a branch

line of the Intercolonial railway and for the steamer 'Northumberland' running during the season of navigation from Summerside, Prince Edward Island.

The works at Point du Chene consist of two breakwaters, an inner one and an outer one, each 600 feet long, with an opening, between, of 80 feet, and a ballast wharf 200 feet long, connecting the outer breakwater with the Intercolonial Railway wharf. They have been repaired or rebuilt at various times.

In the autumn of 1902, a storm made a gap in the outer breakwater about 50 feet long. This was in part rebuilt in 1903-04, the cross-ties being replaced at 5 feet intervals, instead of ten as before, and the timbers of the outer face screw bolted together. The top was raised two tiers, or 1 foot 8 inches higher than before.

During the fiscal year 1904-05, the repairs were completed by filling about 22 feet with ballast, laying 4-inch covering for a length of 24½ feet, 6-inch sheathing for a length of 73 feet on the sloping face, and a 12 by 12 inches cap on each side, 72 feet long. Shorewards of the portion rebuilt, the covering and stringers were found to be loose and floating at extra high tides. The covering was therefore removed at 10 feet intervals over a length of 280 feet, or to the inner end of the breakwater, and the stringers were bolted to the cross-ties. The interior was filled to the top with 2½ to 3 feet of stone and the covering replaced.

A storm on November 14, 1904, carried away the covering stringers and sheathing for a length of 150 feet outside the repaired part, of which the inner cap and top face timbers were also displaced by moving timbers. These latter timbers were replaced, the wreckage gathered and piled, and two tiers each of longitudinals and cross-ties removed, i.e. to about low water level, from about 130 feet of the damaged portion, for the purpose of rebuilding it. A track and turntable were laid towards the outer end of the outer breakwater, on a temporary timber work, and 73 cubic yards of mixed stone were placed outside the face. Four hundred and sixty-six cubic yards of large stone were deposited over brush outside the inner breakwater.

The expenditure for the fiscal year 1904-05, was $3,998.06.

POINT WOLFE.

Point Wolfe, in the county of Albert, is a small natural harbour on the north shore of the Bay of Fundy, about 57 miles east of St. John. The river mouth gives an indraught from the bay 1,800 feet long and 700 feet wide. The harbour lies at the upper end of the embouchure, and is formed by a beach or bar thrown up by the sea, 1,000 feet long, 200 feet wide, and 14 or 15 feet higher than the flats. The crest of this bar was being washed away by the waves to the detriment of the basin inside.

A contract was accordingly let in 1900-01, for the erection of protection works, 880 feet in length, intended to prevent further denudation and to effect restoration of the beach to the original height.

Construction of the work, which consisted of pile bents, 8 feet apart, and 11 feet wide, partially filled with brush and stones, designed to collect the littoral drift, was completed in December, 1901. The work answered its purpose in raising and restoring the beach generally, with the exception of a part, 280 feet long, near the shore end, which was washed away, to a depth of 8 feet and was repaired chiefly with brush and stone in 1904-05.

The expenditure during the fiscal year 1904-05, was $497.35.

QUACO.

Quaco is on the northern coast of the Bay of Fundy, about thirty miles to the north-eastward of the entrance to St. John harbour. The bay is semi-circular, and lies open to the south-east between Quaco head and Macomber point, some two miles apart, the breadth from a straight line drawn between these capes being about a mile.

At the mouth of a small river discharging into the eastern end of the bay, a harbour of refuge has been formed by the construction of two piers; the eastern work,

310 feet long, built in 1873, and the western, 302 feet long, built in 1882-83. The harbour is dry at low water and is only accessible for about six hours during each tide, to the coasting vessels which come to load timber or to seek shelter.

Spring tides rise 30 feet; neaps, 23 feet.

In 1886-87, small repairs were made by the expenditure of $198.53.

The west pier was damaged by a storm in 1889, and repaired in the following year at a cost of $557.57.

In 1891-92, piers received general repairs, the sum of $1,350.82 being expended.

In 1893, the west pier was damaged, and was repaired for a length of 100 feet at a cost of $999.88.

In 1896-97, repairs were made to the west pier for a distance of 149 feet, the sheathing of the sloping face, and several face-timbers, being renewed with birch, 14 inches square secured with screw bolts, and a quantity of ballast being replaced. A couple of fenders and a ladder were also added. At the same time, the east pier was protected from the scour of the stream by brush and stone; thirteen new fenders were applied, and the decayed tops of five others were replaced by sound material.

Small repairs were also made to the covering and sheathing, and another ladder was provided. The whole expenditure in that year amounted to $1,377.51.

In 1897-98, a sum of $50 was applied to closing a small opening and strapping the angle of the west pier, which had been struck by a schooner.

In the fiscal year 1902-03, the sloping face of the east pier was reconstructed for a length of 70 feet, the outer end being ten tiers in height, and the inner, seven tiers high.

In 1903-04, the repairs to this face were completed and were extended for an additional length of 19 feet, the whole being covered with sheathing. Four new mooring posts were inserted; a new corner fender was placed, and the cap and covering received minor repairs. Some pieces of sheathing were also placed on the west pier.

In 1904-05, repairs were made to the upper works of both the east and west piers, comprehending renewal of the cap, top tiers, in great part stringers and covering.

The expenditure during the fiscal year 1904-05, was $1,844.11.

RICHIBUCTO.

Richibucto harbour, Kent county, lies on the eastern side of Northumberland straits, about midway between the entrance to Miramichi bay and Shediac. It is one of the New Brunswick deal ports, the shire town of the county, and the terminus of the Kent Northern railway.

The entrance to the harbour is between two sandy beaches known as 'North Beach' and 'South Beach.' The works originally proposed for the improvements of the harbour were two breakwaters, one to extend from the southern point of the North Beach, and the other to run in a north-easterly direction from the South Beach, the object being to confine the water to one permanent channel and so scour the bar at the entrance.

In 1873 and 1874, the works were commenced by the construction of a breakwater or pier, 1,200 feet long, off the North Beach. This was subsequently extended westward at various times to stop erosion of the beach up till 1891, when a total length of 2,158 feet had been built.

Between 1891 and 1903, in consequence of damage and decay, repairs and reconstruction were carried on at different sections of the work, and a number of groynes and breastworks were built from both the outside and inside of the main work, to protect the latter and raise the beach.

In 1901-02, an extension to the breakwater was begun and partially built for 130 feet, out of a proposed total length of 315 feet. It begins at a point 300 feet from the original end of the breakwater and runs in a south-easterly direction.

In 1902, a contract was let for the completion of this work and of a protection work running westerly along the harbour face of the old work, for a distance of 800

feet starting from the inner end of the extension. This contract was completed on November 30, 1903.

The extension consists of brush mattresses, 74 feet wide on the bottom, weighted with small stone, through which three rows of piles, 5 feet apart, are driven, and on which a rubble mound is laid 12 feet wide on top, finished with large stone sloping at the rate of 2 to 1 on the sides.

A further extension 300 feet long of similar construction is now proposed and for this a quantity of materials were procured during 1904-05. The government hoisting engine was also overhauled.

The expenditure for the fiscal year 1904-05, was $1,002.42.

The total expenditure to June 30, 1905, is $119,824.20.

RIVER ST. JOHN, AND TRIBUTARIES.

The River St. John proper, 450 miles long, takes its rise from sources in the province of Quebec and the state of Maine, at a reputed maximum altitude of 2,159 feet above sea level. Entering New Brunswick at the confluence of the St. Francis, a little below the borders of Quebec, it continues to be the international boundary almost to Grand Falls, and after flowing through the province for nearly 300 miles (by way of the counties of Madawaska, Victoria, Carleton, York and Sunbury, King's, Queen's), discharges into the Bay of Fundy at St. John. Many tributaries, some being of considerable magnitude, are received by the main stream. Among them are the St. Francis, Madawaska, Green river, Grand river, Salmon river, Aroostook, Tobique, Presqu'Isle, Meduxnakeag, Eel river, Mackawick, Keswick, Naskwask, Oromocto, Jemseg (Grand lake), Washademoak Belleisle and Kennebecasis. Except the last five which are slightly tidal for some distance, they are fresh water streams.

The total basin from source to mouth is computed to be 26,000 square miles, an area almost equal to the whole of New Brunswick, but as a part of the water-shed lies outside, only a little more than one-half the province is drained by the river. The St. John is considered navigable for vessels 15 feet in draught for a distance of more than fifty miles from the mouth, but no positive information on this point has yet been obtained. About 8 feet at low water can be carried to Fredericton, eighty-four miles from the sea, and six miles below the head of tide at Springhill. Three naturel features of the river are remarkable, viz.:—

The tidal falls, Grand Falls, and the annual floods.

Although in summer the fresh water stream between Woodstock and Fredericton is in places 400 to 1,000 feet wide, expanding at the latter place after reaching tide-level to half a mile in breadth; yet the actual mouth of the river, a rocky gorge 400 yards long, immediately at the head of St. John harbour, measures but as many feet across at high water. Here at low water, the level of the river is from 11 to 25 feet above the sea, and as the ordinary tides flow from 23 to 27 feet the sea level at high water is from 8 to 13 feet higher than the waters of the river. Thus there are two falls at every tide, viz.: one outward and one inward, and vessels can only pass when the waters of the ocean and the river are on a level. This occurs only for a space of about ten minutes during each ebb and flow of the tide, at all other times it is either impassable or extremely dangerous.

At Grand Falls, 223 miles from the sea, the whole volume of the river plunges over an almost perpendicular face of limestone 60 feet high, into a deep ravine 250 feet across, somewhat similar to the narrow pass at St. John. Flanked for nearly a mile by lofty rugged cliffs, the confined current dashes from the foot of the falls with excessive strength, mining deep pot-holes in the rocky bottom of the channel in the course of a further descent, estimated to be slightly less than the first. In the harbour of St. John, ordinary spring tides are considered to rise 25½ feet. At the wharfs of the river steamers, a mile above the falls, while summer range is about 3 feet, the highest flood-mark is given as 17 feet above extreme low water. At Oro-

mocto, seventy-three miles from the sea where the tidal range is from 10 to 12 inches, the flood of 1887 reached a bridge, 20 feet above low water. At Andover, 200 miles from the sea, floods attain an elevation of more than 27 feet above summer level. By contrast the Tobique and St. Francis swell 9 and 6 feet respectively. After the first spate, due to the melting of the snow in the catchment basins of the Kennebecasis, Belleisle bay, and Washademoak, a secondary flood occurs, caused by the back water of the main river, which is fed from sources farther north, and consequently later in thawing.

The harbour of St. John is open all the year round, but the river is ice-bound from November to April, an average period of 144 days. The water usually begins to rise in April, reaching flood-pitch early in May, and maintaining a high level for two or three weeks. By the middle or end of July, the water has fallen to summer level, a stage lasting, with some variations, dependent upon the rainfall, for about sixty or seventy days.

In addition to a little coal, a considerable quantity of cordwood, and the ordinary food supplies yielded by the farms of a lengthy fertile valley, the trade of the river comprehends an abundance of valuable timber, fluctuating each season in amount, but generally at least equal to 135 million superficial feet annually. Most of the logs are floated loose down the tributaries and upper river to Fredericton, some being manufactured there and shipped coastwise or to the United States. The remainder, or major part, is towed from the provincial capital to St. John in rafts, giving employment to a fleet of tugs.

For the purpose of works, three divisions may be made of the river :

1. Tidal navigation, for steamers and sailing vessels, between St. John and Fredericton, eighty-four miles, requiring 11 feet at low water. Principal obstructions: the Oromocto shoals, about one and a half miles; the middle ground above Oromocto island, about one mile, and the shoals abreast Fredericton, rather more than one-half mile in length. The last are now dredged, but the other obstacles remain.

2. Inland navigation, from Fredericton to Woodstock, distance of about sixty-five miles, requiring 3½ feet at low water. The obstacles to inland navigation, besides boulders in some places, and perhaps bed-rock at Meductic, are shoals of material more or less coarse, according to the strength of the current, varying in composition from sandy gravel to stones. The chief bars at at Springhill and Bear island; while Knapp's, Perley's, Coac, Mackawick, Belvisor, Moore's, Bett's, Dibblee's and Bedell's bars, with Meductic rapids, constitute, according to present information, lesser obstructions. Dividing above Springhill into two main channels and from a general width of 350 yards opening to a stretch of one and a half miles between banks, with a water-way increased by at least one-third, the river becomes dotted with eyots and shallows. Two gravel shoals, known as the Russel and Chapel bars, together about one-half mile in length, compose the obstacle at Springhill. At Bear island, twenty-five miles above Fredericton, in consequence of another division of the river into three channels aggregating 600 yards in breadth, a shoal of gravel and stones one mile long, giving 21 inches at low water, has been formed. Besides dredging a long training dyke will be necessary for the maintenance of this channel After reuniting below the island, the width of water-way in single channel is only 250 yards.

3. The Upper river, including with the tributaries, all that part above Woodstock. This division is now used for the passage of timber only. On some of the tributaries beyond the reach of the railways, supplies for the lumber camps are transported in tow-boats, for which channels are required to be made and tow-paths provided.

SECTION 1.

Tidal Navigation.—The tidal compartment of the River St. John comprehends besides the main stream navigable by steamers which run daily between St. John and

Fredericton, a distance of eighty-four miles, four tidal arms, all navigable by wood boats and regular passenger steamers, the extent of the whole tidal navigation being as follows :

Main River St. John	84	miles long.
Kennebecasis	24	"
Belleisle bay	12	"
Washademoak lake	27	"
Grand lake and Salmon river	35	"
Total extent	182	miles

For the convenience of the steamers and other craft navigating the main river and its branches, the provincial government has erected a number of wharfs, towards which the department has made contribution amounting to one-half the certified cost.

During the year 1901-02, assistance was given to a number of these wharfs, $3,000 being available for that purpose ; while in the fiscal year 1902-03, $4,813.14 was applied to the same object.

A contract was signed on January 22, 1903, for the construction at Oromocto of a public wharf which was begun and completed in 1903-04. The new wharf is of round cribwork 300 feet in total length with an approach 20 feet on top, battered at the rate of one to one on the upper side, and sheathed. The pierhead is 70 x 35 feet on top. The work is filled with ballast. A road 130 feet long, was made from the old wharf to the new.

The upper river, comprehending many branches, including the Tobique, Green river, St. Francis, &c., &c., extends from Woodstock to the north-western boundary of the province. Navigation on the upper river is confined to the passage of timber and rafts, or to the tow-boats which convey supplies up the streams, from the end of the railways to the lumber camps, situated beyond the lines of ordinary communication.

MAIN RIVER.

Mouth of Tobique to River des Chûtes.—Between the mouth of the Tobique and River des Chûtes, 125 cubic yards of rock were removed by blasting.

The expenditure during the year amounted to $199.92.

Salmon river to mouth of Tobique.—Between Salmon river and the mouth of the Tobique, 92 cubic yards of rock were removed by blasting.

The expenditure during the year amounted to $150.

Grand Falls to Salmon river.—Between Grand Falls and the mouth of Salmon river, 103 cubic yards of rock were removed by blasting.

The expenditure during the year amounted to $150.

Grand Falls.—At Grand Falls, a road was cut down to Grenier's Eddy and 175 cubic yards of rock were blasted.

The expenditure amounted, during the year, to $498.84.

Tobique river.—On the main Tobique between Plaster Rock and the forks of the Nictau, channels from 60 to 75 feet wide and 4 feet deep, aggregating 6,710 yards in length, were made ; 40 rocks (33 cubic yards) were blasted, trees, and stumps along the bank, obstacles to towing, were removed, and at Knowlton's Flats, a cribwork dam, 210 feet long and 24 feet wide and 8 feet high, was built.

The expenditure during the year amounted to $2,273.12.

Little Tobique river.—The stream was cleared from Lawson's camp to the foot of Nictou lake, a distance of ten miles, and a towpath 10 feet wide was cut on one side.

The expenditure during the year amounted to $200.

Quisibis river.—A sluice for timber, 110 feet long, 8 feet wide and 4 feet high, was repaired with 26 spruce logs, 18 feet long. A new gate, 8 feet high and 6 feet wide, was besides placed in the dam.

The expenditure during the year amounted to $183.75.

Little Forks, Quisibis river.—On the Little Forks of the Quisibis river, a tow path, 10 feet wide, was cut and cleared on both sides for two miles up the stream from Theriault's landing.

The expenditure during the year amounted to $50.

Little Forks, Green river.—At Little Forks, Green river, 32 cubic yards of rock were blasted.

The expenditure during the year amounted to $50.

Little Forks, Iroquois river:—From the rapid, one and a half mile long, situated one mile from the mouth of Little Forks, rocks were cleared from the stream and for two miles above the rapids, trees were cut. From the second rapid, three-quarters of a mile long, forty-two rocks (37 cubic yards) were blasted; stones were hauled ashore and a tow-path, three-quarters of a mile long and 12 feet wide, was made.

The expenditure during the year amounted to $225.03.

Trout River.—A tow-path, 6 feet wide, was cut and cleared from the mouth of the Little Forks of Trout river on both sides of the stream, to within one-half a mile of Quebec boundary, a distance of eight miles. Some pine stumps and 12 cubic yards of rock were blasted along the river bank and at a mile from Trout River a cribwork dam, 100 feet long, 10 feet wide and 4 feet high, partially ballasted, was built.

The expenditure during the year amounted to $150.

St. Francis river.—Channels, 150 feet long, 20 feet wide and 3 feet deep, were made through three bars above Gross Lake rapids. Two channels, each one-quarter of a mile long, were made through the rapids. One channel, 165 feet long, 20 feet wide and 3 feet deep, was made through a bar below the rapids; a channel, 200 feet long, 20 feet wide and 3 feet deep, was made through two bars above McKeown's pond, besides three tow-paths severally one-quarter of a mile long, 300 feet long, and 82 feet long.

The expenditure during the year amounted to $200.

St. Hilaire.—At St. Hilaire, a washout, 140 feet long, 15 feet wide and 5 feet deep, was filled in by depositing 388 cubic yards of stone.

The expenditure during the year amounted to $193.50.

The expenditure during the fiscal year 1904-05, amounted to $5,108.58.

Exclusive of the cost of dredging, the total expenditure on the River St. John to June 30, 1905, is $174,442.86.

SHIPPEGAN.

Shippegan gully, Gloucester county, a passage between Shippegan island and the mainland, is situated on the western side of the Gulf of St. Lawrence, and is distant three miles south-east of Shippegan village, the terminus of the Caraquet railway, and sixty-five miles east of Bathurst, the shire town of the county.

To improve the entrance to the harbour, the department in 1875 commenced the construction of a breakwater on the eastern side of the gully, and a dam 890 feet long to close what is known as the eastern gully, distant three-fifths of a mile eastward of the main gully.

From 1875 to 1890, the works were confined to the eastern side of the entrance, and at the latter date consisted principally of a pier or breakwater at the point, and a breastwork along the northern face of the beach, the whole having a length of 1,220 feet, one-third of which was constructed of cribwork and the remainder of brush and pile works.

In 1880-81 and 1883, the dam was repaired, raised and strengthened, and during the latter year the pier was also repaired and extended 120 feet.

General repairs were again made during 1883-84 and 1886-87. In 1888-89, the work was further extended 50 feet by the construction of an additional block at the outer end.

During 1890-92, a contract was entered into for the construction of a breakwater 1,194 feet long, off from the western beach, consisting of a pile-work filled with

brush and stone; 137 feet of the outer portion of the eastern work was rebuilt at the same time.

In 1892-93, repairs were continued and in 1897-98 plans were prepared and general repairs to all the works undertaken. These were continued until the winter of the following year, and consisted of raising and widening the dam, extending it 185 feet and building short groynes along its northern side; building a number of short works at points between the dam and the east breakwater of stakes and brush, or piles, brush and stone, for the protection of the beach, and a structure 90 feet long, composed half of a close-faced block and half of pile-work, to close a gap in the main breakwater. Along the west beach a breastwork 1,669 feet long of stakes, piles, brush and gravel was constructed to close the runnels and raise the crest of the beach.

In 1899-1900, the gap of 90 feet in the east breakwater was completed and the work of raising and widening the dam continued, further beach protection works were also constructed on the east beach.

A new 44 x 34 feet block was built in 1900-01, at the outer end of the eastern breakwater, the ballasting being completed in the following year. Additional breastworks were built on the west beach, and the western breakwater was strengthened with braces and horizontal sheathing, and extended 100 feet shorewards. This work was continued in 1901-02 and the breakwater extended a further distance of 175 feet shorewards by driving close-piles backed with brush and stone.

On the east beach in 1901-02, a beach protection work was built, 1,826 feet long, easterly from the dam towards the breakwater, and the dam was raised 3½ feet for a length of 350 feet; one groyne was built and another begun on the harbour side of the beach.

In 1902-03 and 1903-04, the building and repairing of groynes and breastworks was continued, an extension of 1,200 feet being added to the breastworks of the west beach, and 500 feet built on the seaward side of the east beach. Slight repairs were also made to the two breakwaters.

In 1904-05, twenty-nine piles were driven close around the south-east corner of the east breakwater, where the original close-piles had been undermined and the ballast washed out. The interior was then filled with brush and stone. Block No. 2 was refilled with stone, where necessary, about 50 cubic yards being required, and covered with plank for a width of 10 feet on the outside. Inward, from block No. 3, 150 feet of the seaward face of the work was close-piled outside two new walings, and the interior was filled with brush, stone and gravel.

The breastworks on the harbour side were repaired for a length of 250 feet by filling them with brush and stone, and extended eastward 325 feet with a picket and brush fence, to replace an old work that had gone to decay. Two short groynes, 22 and 25 feet long, were built on the harbour side, and one old groyne was cut down at the outer end, so as to be secured from lifting by the ice.

On the west side the broken timbers, brush and stone were removed from the west breakwater for a length of about 50 feet, where damaged by the ice last spring. Piles were driven inside the work in eleven bents of three to five piles each, to which three 10 x 12 cross-ties were bolted at each bent, and a new face, 54½ feet long, was formed on the harbour side, on which the ice strikes with greatest force, by driving hardwood close-piling 10 inches thick, secured to three walings which were in turn bolted to the piles. Brush and stone were placed within and the old covering relaid. An old groyne, damaged by the ice, was cut down at its outer end.

A new pile block, 77 feet long on its centre line and 24 feet 4 inches in extreme width, was begun on the inside of the west breakwater, 100 feet from the outer end. Its length is about in the direction of the channel now being dredged, and, it is intended to act as a groyne to form a beach inside it, along the breakwater, to protect the latter from ice drifting down the harbour and to direct the current against a bar, inside the entrance, and so straighten the channel. At the end of the fiscal year,

the sixty-six main piles had been driven and walings, chocks, and horizontal braces placed. A quantity of ballast and brush and 10 x 10-inch hardwood close-piling was also obtained for the work.

The expenditure for the year amounted to $7,755.42.

The total expenditure to June 30, 1905 is $95.809.71.

STONEHAVEN.

Stonehaven, formerly Clifton, in the county of Gloucester, a station on the Caraquet railway, is situated on the southern shore of the Baie des Chaleurs, eighteen miles east of Bathurst, and eight miles west of Grande Anse.

A breakwater at Stonehaven, originally 425 feet long and constructed by private persons was acquired by the department in 1878, and during the same year was extended 325 feet, making a total length of 750 feet. The outer 220 feet is placed at an angle of 72 degrees with the inner portion; the whole construction is of round and square timber cribwork, filled with stone and protected along the northern and eastern faces by a stone talus. The harbour affords shelter for fishing vessels and for schooners engaged in the export of grindstones, &c.; the depth at low water is 7 to 8 feet. Spring tides rise 7 feet.

Between 1886-88 and 1891-93, and annually since 1897, general repairs have been made to the work; large stones of from one-half to one cubic yard in bulk have been placed along the northern and eastern faces. To prevent these from being swept around the end of the work, materials were obtained in 1899-1900, for a block 70 by 40 feet, which in the years 1901-03 was built at the westerly end of the 'L.' This block consists of close-faced cribwork covered with 6-inch plank, the corners are protected each with three iron straps. Its total height is 17½ feet.

In 1903-04, a new break 223 feet long was built along the northern face of the 'L.' It is formed of cribwork 6 to 6½ feet wide, faced on the outside with four tiers of 10 by 12 timber laid close and covered with 4-inch plank. Tramway rails were laid along it, the turn table at the north-east corner was raised and the rails along the eastern face of the approach graded to the new height, by means of extra ties over a length of 120 feet. A ramp was also built on the western end of the 'L,' to enable teams to ascend to the new pier-head.

During 1904-05, 625½ cubic yards of granite boulders and 300 cubic yards of freestone blocks were obtained, with which the laid stone slope on the eastern face was continued a distance of 205 feet, or to within 3 feet of the north-east corner. Part of the stone was also used to repair the shore section previously built of freestone, and part was placed along the northern face of the 'L' chiefly in the angle between the 'L' and the new block. An extra cap timber was laid around the new block and along the outer face of the 'L', where also twenty-two new fenders were placed to secure it.

The expenditure for the year was $2,499.23.

The total expenditure to June 30, 1905, is $295,575.13.

TYNEMOUTH CREEK.

Tynemouth Creek, St. John county, twenty-one miles east of the city of St. John, is one of the several small havens, dry at low water, found on both shores of the Bay of Fundy, which are only useful on account of the high range of tide. Tides rise here about 28 feet. Inside a beach of gravel and stones, is a tidal basin, accessible to small vessels at high water by an opening at the east end of the beach.

In 1874-75, the department built a substantial cribwork pier on the rocky foreshore of the eastern cliff to prevent vessels from taking ground on that side.

In 1882-83, another work to maintain the channel was built on the point of the beach on the opposite side.

In 1894-95, a sum of $225 was applied to replacing some of the fenders and covering of the east pier and to removing part of the rocky ledge obstructing the channel.

In 1897-98, a sum of $510 was expended in removing 313 cubic yards of shingle from a shoal obstructing the entrance, and in effecting minor repairs to the west pier.

The harbour is constituted by a long beach stretching from the western side of the inlet. By heavy gales, the crest of the beach was cut down almost 5 feet for a length of 300 feet.

In 1900-01, to prevent this beach from being lowered and the harbour from being endangered, a protection work of piles and planks, from which three groynes 41 feet long, projected, was built for a length of 345 feet.

At the cribwork groyne of the west pier, a block 68 feet long over all, and 16 feet wide, repairs were made for a length of 52 feet long, new ballast floors were inserted; new ballast was placed in the work; and the top was given new stringers, and in great part, new covering, besides ten new fenders. The remainder of the covering of the west pier was also patched in places.

At the east pier, chocks were inserted between started face-timbers to retain the ballast ; 13 new fenders were placed and the break was repaired.

During the fiscal year 1903-04, the main body of the west pier was raised 2 feet for a length of 116 feet, ballasted for a depth of 5 feet and newly covered. The spur of the west pier was also raised two tiers, ballasted and covered ; while the inner end was levelled up and raised one tier. Three new fenders were added to the east pier, and loose fenders were bolted. The road approaching this pier was also repaired for a distance of about 50 yards. The shoal obstructing the entrance to the harbour was removed, the channel being made 45 feet wider, and 2 feet deeper than before by removing the bar for a maximum length of about 300 feet.

In 1904-05 general repairs were made principally to the west pier, a part of which was raised 5 feet, ballasted, covered and fendered. At low water the channel which curved sharply, was straightened, and the shingle banks were protected with brush and stone. Large stones were also removed from the beach and the channel was much improved.

The expenditure during the fiscal year 1904-05, was $499.80.

The total expenditure to June 30, 1905, is $9,741.37.

UPPER SALMON RIVER.

Upper Salmon river, otherwise called Alma, the terminus of the Albert Southern railway, is situated in the county of Albert, 5 miles from Rocher bay, and 2 miles from Herring Cove.

From Alma, deals are either sent in coasting vessels to St. John for shipment, or are transported directly to sea-going vessels lying at the anchorage of Grindstone Island, or in the road-stead of Herring Cove. For protection of the coasters lying inside the river-mouth at the private wharfs, which afford 4 or 5 berths, the department built in 1883-84 a breakwater 26 feet in mean width and 180 feet long.

In 1886-87 this breakwater was extended to a total length of 420 feet. By position the work lies across the path of the littoral drift. In consequence, the foreshore has advanced nearly 500 feet on the weather side, and the drift, having fully charged the outside of the breakwater, is now working around the end. Accordingly, inside the point of the breakwater a bar 11 feet in height was formed which extended nearly across the mouth of the river. By means of a temporary groyne, inducing scour, the channel, which had become contracted to a width of only 34 feet was increased during the months of April and May 1900, to 125 feet in breadth, but the shoal was soon formed again.

On August 6, 1902, a contract was let for the construction of an extension 104 feet in mean length, and 30 feet wide on top, of close faced cribwork, with a sloping face on the weather side of the breakwater. By the end of the year, excavation for the foundation had been made and the timber work begun.

By the end of the year 1903-04, the work had been brought up to the 23rd tier or 4 feet below the level of the finished top. In August, 1904, the work was completed.

The expenditure during the fiscal year, 1904-05, was $1,766.50.

The total expenditure to June 30, 1905, is $16,596.20.

UPSALQUITCH RIVER

The Upsalquitch river is the largest tributary of the Restigouche river from the south, and drains about one third of Restigouche county. It enters the Restigouche river about 6 miles above Matepedia station, on the Intercolonial railway. It is an important lumbering river, about 15 million feet of logs being driven down it annually and 15 lumber camps are situated on the river and its branches.

Improvements were asked to facilitate log driving and the passage of towboats, which carry about 100 loads of supplies to the camps each season. The work was done during August and September, 1904, and was as follows : Removing a gravel bar at foot of Little Falls ; blasting the tops off or making channels through 12 ledges and blasting 7 boulders; removing also 75 smaller rocks, all at Little Falls. At Reid's rapids, blasting one ledge and about 20 boulders; McGowan's rapids, blasting about 50 boulders; Rocky rapids, clearing the channel for a length of 300 feet of boulders, about 150 being removed; Big Falls, cutting a road for horses through two edges, at the side of the falls and blasting the tops off six ledges in the channel. These improvements were made in the lower 12 miles of the river, where navigation is most difficult.

The expenditure for the fiscal year was $470.54.

WILSON BEACH.

At Wilson's Beach, a fishing settlement in a slight indention of the coast on the west side of Campobello, an island in the Bay of Fundy, forming a part of the county of Charlotte, a breakwater 373 feet in length was built to shelter the cove by the joint contributions of the federal and local governments between the years 1874 and 1878.

The outer arm of the breakwater having become dilapidated and the cove, having been silted up, preparations were made in 1899-1900 to restore the inner end 284 feet in length, and the repairs were nearly completed in the following year, 1900-01. A quantity of materials was also procured for the construction in deeper water of the dismantled outer end.

In 1901-02, the repairs to the inner end were completed. Crib No. 1 of the part to be reconstructed, 80 feet in mean length, and 36 feet wide, consisting principally of hardwood timber, was built, placed in position and ballasted. Crib No. 2, 74 x 40 made of similar materials, was also begun and at the end of June had been built to a height of eight tiers. A quantity of timber was also delivered.

In the fiscal year 1902-03, crib No. 1, was increased 130 feet in length on the outside and raised at the inner end to the 26th and at the outer, to the 23rd tier. Crib No. 2 was brought up to 23rd tier.

In 1903-04 the superstructure of crib No. 1 was completed; while the top of crib No. 2 was brought up to the full height, with the exception of the benching required to be left for making the connection with crib No. 3 which was begun and brought up to the tenth tier in height.

By the end of 1904-05, crib No. 3 had been built, sunk in place, brought up to the height of the third floor, and ballasted, and the work had been covered to within 85 feet of the end.

The expenditure during the fiscal year 1904-05 was $1,800.

The total expenditure to June 30, 1905 is $40,533.84.

PROVINCE OF QUEBEC.

ANSE À BEAUFILS.

Anse à Béaufils, in the municipality of Cape Cove, County of Gaspé, is situated on the Gulf of St. Lawrence, six miles south of Percé.

In the years 1898 to 1901, protection works, on each side of the channel leading to the inner basin, were built, consisting of two training piers, each about 440 feet long.

During the fiscal year 1902-03, the pier on the eastern side having settled in the sand 6 to 8 feet deep, the sum of $467.12 was expended in partly levelling the depressed portion.

During the month of October and November last, 50 feet of the east training pier, having been broken into by the sea, had to be sheathed with small logs, and part of the ballast carried away was replaced. A crib of 85 x 22 x 12 feet was built as an extension to the west training pier. The work was done by day labour.

The total expenditure during the last fiscal year amounted to $1,548.48.

Spring tides rise 5 feet; neaps 3 feet.

ANSE À BENJAMIN.

L'Anse à Benjamin, at St. Alphonse, is situated on the west side of Ha, Ha bay, on river Saguenay, in the County of Chicoutimi, near the wharf of St. Alphonse.

The work done consists in the blasting and removal of boulders.

Expenditure, $901.97.

ANSE À GILES.

L'Anse à Giles is situated on the south shore of the St. Lawrence, about four and a half miles west of the village of L'Islet.

In the year 1904, this department acquired a wharf at that place; it consisted of a head block, 50 by 36 feet and 16 feet high, together with six platforms connecting piers; the total length, 357 feet.

During the fiscal year 1904-05, the following repairs were made to that pier; two piers, 25 by 20 feet and 15 feet high, were entirely renewed, the superstructure of the others was rebuilt and all the corners protected with spruce sheathing 4 inches thick; all the stringers were replaced and the whole flooring and cap timbers renewed.

The wharf is now in a fair condition but additional works will be required to complete repairs.

The expenditure amounted to $987.94.

ANSE À LA GROSSE ROCHE.

L'Anse à la Grosse Roche, in the parish of Sacré Cœur, in Chicoutimi county, is situated on the north side of the River Saguenay, twelve miles from its mouth.

During the year 1903-04, a certain quantity of timber was bought in view of the construction of a wharf at this place.

Amount expended, $599.50.

During the fiscal year 1904-05, a contract was awarded for the construction of the wharf, for the sum of $9,000; work was commenced at once.

When completed, the wharf will be 265 feet long, and the depth of water, at the outer end, will be 16 feet, at low water spring tides. It will consist of three piers, placed 20 feet apart; the outer pier, built in the form of an 'L,' will be 105 feet long and 40 feet wide. The abutment will be 90 feet long and 20 feet wide.

The expenditure during 1904-05, was $8,538.82.

ANSE À L'ISLOT.

Anse à L'Islot is a small harbour seven miles west of Newport, protected from the northerly and easterly winds by the main coast, and from the south-west gales by a small island, being thus open only to southerly gales.

It was decided to build a landing pier, running from the main shore towards the outside end of the island, in a south-westerly direction answering both the purposes of a landing pier and of a breakwater.

During the latter part of the last fiscal year, timber was bought for the proposed work to the amount of $397.20.

ANSE AU GRIFFON.

Anse au Griffon is seventeen miles north-west of Gaspé cape. The mouth of the river, having been choked and closed up by a gravel bar thrown in by north-easterly gales, overflowed the flats and part of the village, causing a good deal of damage to property and to the fishing industry.

The new channel running easterly, inside of the gravel bar, had to be closed by a training pier 345 feet long, 11 feet high and 22 feet wide, with brush and stone backing.

The gravel bar, 10 to 12 feet high and 170 wide, had to be cut through for the continuation of the training pier. A channel of 600 feet long was opened at some distance above the work, so as to take the water from a small tributary into the main river, above the works under construction.

The expenditure during the fiscal year of 1904-05, is $1,608.26.

ANSE AUX GASCONS.

The village of Anse-aux-Gascons, Bonaventure county, is situated on the north shore of the Baie des Chaleurs, in the municipality of Port Daniel east, 7 miles from Port Daniel, 42 miles from Percé. It is one of the best fishing stations on the Baie des Chaleurs.

In 1897, a contract was entered into for the construction of a breakwater, in the sum of $11,494 ; work was completed in 1899.

This structure is 436 feet long and 20 feet wide on top, built of close face cribwork and sheathed.

During the fiscal year 1901, the sum of $1,402.49 was expended in repairs, improvements and in the removing of dangerous boulders from the vicinity of the breakwater.

On April 27, 1904, a contract was entered into for the construction of an addition 210 feet long, 30 feet wide, built of close faced cribwork, filled with stone and covered with 6-inch flooring. Contract price, $15,495.

During the last fiscal year, the extension, on its entire length of 210 feet, was built up to about 1 foot from high water level.

The expenditure during 1904-05, amounted to $11,612.50.

ANSE ST. JEAN.

Anse St. Jean is situated on the north shore of River Saguenay, 25 miles above its mouth.

The public landing was commenced by the local government in 1876, and was continued by the federal government in the years of 1879-80 and 1880-81.

The amount expended by the local government and the municipality is $1,700.

During the year 1881-82, the upper part of the pier was completed at the cost of $1,091.72. The pier then was 356 feet in length, 26 in width up to the head which is

50 by 40 and 30 feet high. At low water spring tides, there is a depth of 7½ feet at the outer end of the pier.

In 1884-85, the pier was repaired at a cost of $94.25.

During the year 1886-87, the sum of $865.28 was expended on the construction of a movable slip for building an open shed, 40 x 28 feet, and renewing part of the flooring.

In 1890-91, a portion of the wharf, which had settled in the spring of 1889, was raised from 2½ to 3 feet over a length of 135 feet; the flooring was renewed, a quantity of stone was placed in the eastern portion of the wharf and the shed was repaired.

Expenditure, $999.42.

During the years 1892 to 1897, repairs were made, the flooring completed, and the eastern face of the cribwork sheathed at the cost of $1,963.75.

During the year 1898-99, a landing slip was built on the eastern side of the pier; it is 75 feet long at the base, 25 feet on the top and 14 wide and filled with stone ballast. The planking of the pier was renewed on a length of 200 feet. Total expenditure, $1,000.27.

In the year 1899-1900, 50 feet of the outer end of the wharf was sheathed, 300 feet of flooring was completed with 3-inch spruce deals and the shed was painted. Expenditure, $1,010.15.

During the year 1902-03, the work done consisted of general repairs to the flooring, a new landing slip and the sheathing of the shed.

Amount of expenditure, $747.91.

During the year 1903-04, a pier, 24 feet in length by 50 feet in width, 34 feet in height was sunk in 13 feet of water, at low water spring tides. This pier is built of round logs open face cribwork, fenders every 8 feet, and sheathed on the two outside corners with 8-inch timber. Expenditure, $3,059.84.

During the fiscal year 1904-05, the pier, commenced the previous year, was completed; the work consisted in laying the stringers, planking and sheathing. Repairs were also made to the wharf.

Spring tides rise 17 feet, neaps 10 feet.

The expenditure during 1904-05, was $1,191.99.

BAIE DES ROCHERS.

Baie des Rochers is a small village in the County of Charlevoix, situated on the north shore of the St. Lawrence, 120 miles below Quebec.

In order to provide accommodation for the lumber traffic of that place, the construction of a small wharf was commenced during the summer 1904.

At the end of the fiscal year this construction was only half completed.

BAIE ST. PAUL.

The village of Baie St. Paul is in the County of Charlevoix, its population is about 1,500. It is situated on the north shore of the St. Lawrence, sixty miles below Quebec.

This village is built on both sides of the Riviere au Gouffre, which is a tributary of the St. Lawrence, and empties in a large bay three miles wide.

During the fiscal year 1904-05, soundings were taken in view of locating and removing certain quantities of boulders dangerous to steamers calling to that place.

The face-timber and hardwood sheathing, broken by the ice during the last winter, were replaced; 25 toise of stone ballast that had fallen alongside the wharf were placed back into the crib; lifeguards were placed on a length of 150 feet, and 350 planks of the flooring were renewed.

The expenditure for the fiscal year 1904-05 amounts to $1,789.77.

BARACHOIS DE MALBAIE.

Barachois de Malbaie, Gaspé county, is a large parish and municipality, situated at the head of Malbaie, some twelve miles east of Percé, the shiretown.

Barachois, on account of the large area of rich farming lands situated along the four rivers that form the barachois, of the important lumber firms that have built their mills along the barachois, and of its first-class fishing harbour, now that the government has started a training pier to improve the entrance, may be considered the most promising centre in Gaspé peninsula.

Until the government started the training pier now under construction, the fishing boats could not safely enter or go out of the harbour at falling tide and at low tide, on account of shifting sand bars, they had to remain outside and wait for the rising tide to come in. Many a good day's fishing was lost thereby, many a sad accident happened and even lives were lost.

During the last fiscal year a crib 100 x 22 x 18 was partly built and placed in position, at 590 feet from extreme high water mark; the approach thereto, from said high water mark was built of fascine mattresses, with brush and stone filling. Two-thirds of the work undertaken was completed by June 30, 1905.

The total expenditure during 1904-05 was $4,264.41.

BASSIN.

The Bassin is a large parish at the center and west end of Amherst island.

The population is composed of Acadian fishermen engaged mostly in cod-fishing.

On the south shore of Amherst island, opposite the said fishing establishment, there is no shelter whatever. It was decided to construct a small breakwater.

A crib, 66 feet long and 25 feet wide, was built to a height of 13 feet, and left to settle.

The total expenditure during the last fiscal year is $3,890.98.

Spring tides rise 4 feet; neap, 2 feet.

BELŒIL.

Belœil is an incorporated village in Verchères county, on the north side of the Richelieu river, and on the Grand Trunk railway, twenty-one miles north-east of Montreal.

It has an express office, one store, two hotels, one saw-mill, and the works of the Hamilton Powder Company. Population, 400.

The Richelieu river leaves Lake Champlain at its northern extremity, and after a course of eighty miles enters the St. Lawrence at Sorel. It is broader and more rapid in the former than the latter part of its course, and at its centre it expands into the Basin of Chambly. The Richelieu forms the most important medium of traffic between the St. Lawrence and the Hudson river.

South of the Grand Trunk railway bridge, which crosses the river at Belœil, the government built a number of piers and booms on both sides of the channel, to facilitate the passage of steamers and barges coming down the rapid current of the river and going through the narrow passage of the draw-bridge. There were eight piers, four on each side of the channel, distant from 80 to 100 feet from one another. From 1885 until 1888, some slight repairs were made to the booms at a cost of $353.43. In 1890-91, three of the piers were rebuilt from the water line and some slight repairs were made to the booms at a cost of $1,500.35. In 1891-92, two other piers were rebuilt from the water line at a cost of $1,193.38. In 1895-96, some slight repairs were made to the booms at a cost of $144.79.

In 1896-97, it was found that the guide piers on the west side of the river, were in such bad condition that they could not be properly repaired, and an entirely new

line of guide works was adopted. It was decided to build a solid cribwork wall from the Grand Trunk railway pile abutment upward, following the line of a 15° curve (about the natural curve of the shore) for a distance of 337 feet, to remove the four old piers and booms, and to dredge a wider channel for the free passage of boats.

The work carried out by day labour, was commenced during that fiscal year and completed in 1899-1900, at a cost of $17,444.67, including the dredging.

In 1903-04, the top of the four guard piers, on the east side of the river, were renewed to a height of four to six feet, and sheathed with hemlock six inches thick.

The work carried out by day labour was not completed on June 30, 1904, the sum of $1,673.34 being expended.

The repairs were continued in October of the present fiscal year and completed at the end of November last. They consisted chiefly in the replacing of three to five tiers of the top timbers of the four piers, the inserting of screw bolted vertical posts at all corners; the sheathing of the two upstream faces of each pier and icebreaker with 6-inch and 8-inch timber, respectively, and the renewing of the two top tiers of long pier with 12 by 12-inch timber. The piers are now in good condition but the guide booms are old and will probably have to be rebuilt next year. The repairs were made by day labour at a cost of $810.68.

BERTHIER, EN BAS.

The village of Berthier, in the County of Montmagny, is on the north shore of the St. Lawrence, 24 miles below Quebec. A large traffic in farm produce is made through the coasting steamer *Champion* which calls at the wharf.

Spring tides rise 21 feet, neaps 13 feet.

During the fiscal year ended June 30, 1905, the following works were performed at Berthier wharf : the addition to the wharf built some years ago, having settled, was raised about 9 inches and made level with the old wharf. In the month of May 1904, during a heavy storm, the shed standing upon the outer end of the wharf, was severely damaged by the waves; it has been thoroughly repaired and strengthened with knee braces. A surface of 1,500 square feet, of the face timber, on the east side, was sheathed with tamarack deals 3 inches thick.

The expenditure during the fiscal year, was $791.04.

BOIS BRULÉ.

Bois Brûlé is a small fishing cove some five miles below or south of Douglastown. As the beach for the landing of the boats was wearing away, it was decided to construct a training pier.

A crib, 90 x 22 x 12 feet was first built to an old crib, part of which formed the abutment of the bridge crossing the Bois Brûlé river. The old crib was found to be so badly decayed and the bridge so unsafe, that they had to be demolished and rebuilt.

The expenditure during the last fiscal year is $1,161.02.

BONAVENTURE.

Bonaventure East, an important settlement in Bonaventure county, is situated on the Baie des Chaleurs, 10 miles south of New Carlisle, the shiretown of the county. It is a station on the line of the Atlantic and Lake Superior railway. Population of the parish about 2,500.

During the fiscal year 1903-04, a contract was entered into for the construction of a breakwater at this place, in the sum of $15,690.

The work consisted of a cribwork abutment 20 x 20 feet; five cribwork blocks 20 x 20 feet, and an outer block 460 feet. This latter block to be formed of four separate cribs, 150, 150, 9 and 70 feet respectively. The whole structure to be 20 feet

wide, and the landing slip 70 feet long. The top of the flooring to be 12 feet 5 inches above low water spring tides.

Spring tides rise 7 feet.

The works under contract were completed during the fiscal year 1904-05, and the approaches to the breakwater were built by day labour.

The total expenditure during the last fiscal year is $12,722.50.

BROMPTONVILLE.

Bromptonville is a post village in Richmond county, on River St. Francis, and on the Grand Trunk railway, 6 miles from Sherbrooke.

The crib protection wall built at this place was recommended so as to protect, from the bridge to the river bank, the earth roadway which during the spring freshets is broken by ice, undermined by the water and carried away.

The work consists in two open-faced cribs each 100 feet long, 10 feet wide and standing in an average of 10 feet of water, fully ballasted with stone and sheathed with 4-inch planks. The work was done by day labour and completed in the middle of November last. Last spring, it gave adequate protection.

Expenditure during fiscal year, $1,970.59.

CACOUNA.

Cacouna, one of the best known and most frequented summer resorts in Canada, is an important village in the County of Temiscouata, on the south shore of the St. Lawrence, one hundred and twenty miles east of Quebec.

Spring tides rise 20 feet; neap tides, 18 feet.

In the course of the past fiscal year, the sum of $1,249.29 was expended in doing repairs to the wharf.

The section constructed many years ago, some three hundred feet in length, had settled unevenly and was leaning on the east side, in some places the difference in elevation being 1½ feet, the superstructure was unbuilt and raised to the level of the new section.

The handrails, blown down during a heavy storm, upon a length of 500 feet were renewed, also most of the cap timbers.

To complete the extension built last year, the outer face and angles were sheathed with hardwood 6 inches thick, and the corners secured with iron straps.

A stairway was also built on the east side of the addition.

CANNES DE ROCHES.

Cannes de Roches is a small fishing cove situated at the foot of the Percé Mountains, the only harbour for the fishermen from the mountains and from the settlement of Corner of the Beach, on the west side of Malbaie bay.

During the last fiscal year, a sum of $999.66 was spent towards making preparations and buying the material necessary to build a small breakwater, to protect the cove from the easterly winds.

CAPE COVE (ANSE DU CAP).

Cape Cove, Gaspé county, is an important fishing station on the coast of Gaspé, some nine miles south of Percé, the shire town. It is a port of call for steamers plying between Montreal and Pictou and between Dalhousie and Gaspé basin.

During the last fiscal year, timber was purchased towards the construction of a landing pier at that place.

The expenditure during 1904-05, was $2,111.04.

CAPLAN.

St. Charles de Caplan, Bonaventure county, is situated on the Baie des Chaleurs, between Bonaventure and New Richmond.

Its population, about 1,500, is mostly composed of farmers. It is a station on the Atlantic and Lake Superior Railway, some sixty-seven miles from Metapédia.

On May 31, 1904, a contract was entered into for the construction of a breakwater, in the sum of $13,700. Work was completed during the fiscal year of 1904-05.

The breakwater, as completed, measures 400 feet in length by 20 feet in width, and is built of square timber close-face cribwork. The shore end is 85 feet long; the next two cribs 100 feet each, and the outer crib 115 feet long; the superstructure is of continuous cribwork for the full length of 400 feet.

The approaches to the breakwater and road leading thereto were built by day labour.

The expenditure during the last fiscal year is $11,510.40.

CAP SANTÉ.

Cap Santé, the chief town of the county of Portneuf, is situated on the north shore of the St. Lawrence, five miles below Portneuf and thirty-one miles above Quebec.

Spring tides rise 14½ feet, neap tides, 8½ feet.

During the last fiscal year, 1904-05, the landing was raised and repaired.

The works executed comprised the raising of the new extension block built in 1900-01, on an average of 2½ feet in front, on an area of 69 x 52 feet of woodwork, taking some 3,500 feet of square and round timber and 9,600 feet of 3-inch pine deal planking, besides about 5,000 feet of 6-inch cedar sheathing.

The west slope, or ice-breaker, had also to be raised on a level with wharf, its full length of 155 feet, sheathed with 6-inch hardwood where needed, and protected with ⅝-inch steel plate, 8,070 lb. being used.

The rear part, forming an area of 102 x 80 feet, was also raised on an average of 20 inches deep with stone and gravel; the combined freight and waiting-room had to be removed, strengthened and replaced on wharf permanently.

To prevent frequent washouts in heavy rains down the hill to government road leading to level of wharf, it was found expedient to build a protection wall of dry stone, 72 feet in length, mean height 3½ feet and average width 2 feet, with earth filling in rear.

The expenditure during 1904-05, amounted to $2,498.89.

CHAMBORD.

Chambord, in the County of Chicoutimi, is situated on the north-east side of Lake St. John, 12 miles east of Roberval.

Chambord is the junction for the Quebec and Lake St. John railway of the Roberval and Chicoutimi branches. It is an important village and contains one Catholic church, post office, several stores, telegraph office, several cheese factories and a sawmill.

During the year 1903-04, a certain quantity of timber was purchased in view of the construction of a wharf at that place. Amount expended $1,304.92.

During the fiscal year 1904-05, a contract was entered into for the construction of a wharf for the sum of $9,250.

The work done consists of 7 piers, 25 x 20 feet, a head block 30 x 50 feet and an abutment of 40 x 20 feet. The whole is completed.

The depth of water at the outer end is 7 feet. The water rises in spring 14 feet.

The total expenditure during fiscal year 1904-05, is $8,066.67.

CHAMPLAIN.

Champlain, a post village in Champlain county, situated on the north shore of the River St. Lawrence, and on the C.P.R., 15 miles east of Three Rivers. It contains a Roman Catholic church, 2 telegraph offices, 9 stores, 2 hotels, 1 saw-mill, 1 butter factory, &c. Distance from station to village, 1½ miles. Population of the village, 2,000.

With a view of affording much needed waterway facilities to the traffic of Champlain and surrounding localities, it was decided to build a public wharf at that place.

In May 1904, the old wharf of Mr. H. Arcand, with a piece of land of about ½ an arpent in area, on the shore of the river, and a right of way from the public road to the wharf, was purchased for the sum of $1,000. On June 30, material had been procured for the sum of $4,628.07.

During the present fiscal year, the wooden substructure, a length of 110 feet and a width of 30 feet, was built to a height of 2 feet above extreme low water level, sunk in front of the old Arcand wharf and fully ballasted with stone. This was completed in September.

The superstructure of the same dimensions as crib at bottom, but 98½ feet by 30 feet at top on account of icebreaker, and 9 feet high, shall be of concrete mixed 1:2:4 and composed of 12 x 12-inch members, with two ½ inch and two ¾ inch iron bars inserted 3 inches from outside and inside faces, respectively. These members shall be held together by 1½-inch iron bars 10½ feet long and laid vertically. A slip 9 feet wide, 11 feet long and starting 5 feet above low water shall be made in the middle of the face. The concrete icebreaker, inclined 1½ in 1, shall be monolithic and mixed 1:3:5. The filling of the head block shall be of stone and sand.

During the autumn and spring 1904-05, 165 concrete members out of the 230 needed, of different forms and lengths varying from 2 feet to 22½ feet, and representing a total lineal length of 1839 feet out of the 3,027 feet required, were moulded, but owing to high water, these have not yet been put in place. They are expected to be assembled as soon as the water recedes, some time in July next.

The stone approach for a length of 150 feet, a width of 21 feet at top with slopes of 1½ in 1, covered with an 8-inch coat of concrete mixed 1:2:5., on the upstream side, and 5 in 8 on the other side, is about ⅔ completed. The work was done by day labour at a total cost of $8,163.62.

CHATEAU-RICHER.

Chateau-Richer is a village situated fifteen miles below Quebec, on the north shore of the River St. Lawrence.

To accommodate the traffic of this place, a timber wharf was commenced during the last fiscal year; at the end of the year, one-half of the construction was completed. A certain amount of money was also expended towards removing a chain of boulders.

The expenditure for the fiscal year amounts to $7,160.86.

CHICOUTIMI.

Chicoutimi, the town of Chicoutimi, in the county of the same name, is situated on the south shore of Saguenay river, seventy-one miles above Tadousac, and at the head of navigation. The Richelieu and Ontario Navigation Company's boats call two to six times a week at the Chicoutimi pier, during the season of navigation, with passengers, freight and mail.

At the mouth of the river Chicoutimi, about one mile from the government wharf, there is an extensive lumbering establishment belonging to the Messrs. Price

Bros. & Co., who export large quantities of sawed lumber, laths, shingles, &c., to Europe and elsewhere, in ocean vessels and large schooners which ascend the Saguenay to the town.

There is also the Chicoutimi Pulp Company, who has two pulp mills of a capacity of 78,000 tons a year; the Chicoutimi Pulp Company, loads every year an average of twenty steamers.

Construction—The landing pier was commenced in the year 1873, by the St. Lawrence Tow Boat Company and completed by the Dominion government, to whom it was handed over in 1874, at a cost of $14,193.40. From 1874 to 1882, inclusively, it was extended and improved at a total cost of $2,823.73. The pier was then 282 feet long, and consisted of an approach 248 feet long and 30 feet wide, and of a head block 34 feet long and 127 feet wide, forming two wings, respectively, 70 feet and 27 feet wide. On the upper or 70 feet wing was a combined waiting room and office, 20 feet square.

The depth of water at the end of the pier, which was originally 10 feet at low water spring tides, was then reduced to 7 feet by the accumulation of slabs and sawdust from the mills, at the mouth of the Chicoutimi river.

In 1883, the shore end portion of the approach on a length of 38 feet, was embedded in an embankment upon which the station and shed of the Chicoutimi branch of the Lake St. John railway are now erected.

The length of the approach was thereby reduced to 210 feet. In 1884, the approach was widened 70 feet by filling in with slabs the whole space, 210 feet in length, between the upper or 70 foot wing and the shore, and a storehouse 40 feet long and 24 feet wide was erected on this extension at a total cost of $2,145.84. The filling was not, however, carried up to the level of the top of the pier until 1885, when the extension was floored in a manner similar to the rest of the work. A separate waiting-room was also erected on the lower or 27-foot wing. The amount expended was $2,042.11.

In 1890, a cribwork retaining wall, 14 feet wide, was commenced along the slab filling built in 1884, and the flooring was repaired where required at a total cost of $1,005.81.

In 1891, the cribwork retaining wall was completed; a shed 28 x 29 feet built at the southern end of the pier, and the flooring repaired at various places at a cost of $1,802.70.

In 1897, the pier was again widened by the addition of cribwork, 30 feet wide along its lower eastern face, from the lower or 27-foot wing to shore, a distance of 210 feet. The cribwork was fully ballasted and floored with 3-inch tamarack plank, and twenty-five fenders were placed along its face. The pier was also sheathed for a length of 50 feet, along its northern face, in order to complete the sheathing all around the work. The expenditure was $4,992.96.

As then completed the pier was 245 feet long and 130 feet wide. It was 29 feet high above the bottom of the river, at its outer end, which stands in about 8 feet of water at low water spring tides.

Repairs—In 1883 and 1886, minor repairs were done to the flooring, &c., &c., at a cost of $288.55.

In 1887, a slip was built at the outer end of the pier, the waiting-room was painted and general repairs performed at a cost of $1,390.34.

In 1889, the flooring of the pier was almost entirely renewed and six fenders 14 inches square, were placed along its outer face at a total cost of $1,631.65.

In 1892 and 1893, the flooring of the pier was completely renewed on a length of 210 feet and a width of 110 feet, with red spruce plank 5 inches in thickness; the east side of the structure was raised 18 inches; the waiting-room was painted both sides and outside, and two mooring posts were renewed. The expenditure during the two years amounted to $3,024.04.

In 1894, a sum of $1,999.60 was expended for the construction of a movable slip, and the purchase of two crab-winches to raise it. During the years 1895-96, a portion of the outer face and the whole of the eastern face of the structure were re-sheathed with red spruce 6 inches in thickness; a portion of the flooring, not completed in 1893, was laid.

Expenditure during the two years, $3,991.88.

During the year 1898, a sum of $239.79 was expended on minor repairs to the flooring, sheds and waiting room.

During the year 1899, a freight shed, 60 by 30 feet, was constructed on the south side of the pier, for the storage of butter and cheese. Part of the top planking was renewed. The work was done by day labour, at a cost of $1,499.27.

During the year of 1900, the pier was raised 3 to 5 feet over the whole surface, stone ballast was placed in the outer pier, which was all sheathed with tamarack and the covering was renewed with 3-inch plank.

Total expenditure, $5,050.59.

During the year 1900-01, a new 3-inch tamarack floor was laid on a length of 310 feet and a width of 45 feet.

The northern part of the wharf for a length of 145 feet was sheathed and the sheds painted.

Expenditure, $1,012.12.

During the year of 1901-02, the old building on the wharf was taken down and new ones erected; the new freight shed measured 60 by 30 feet, the passengers waiting room is 25 by 25 feet; those two buildings are covered with galvanized iron and painted three coats, inside and outside.

On the north side of the wharf, six fenders, 11 by 11 inches were placed and five snubbing posts renewed. Total expenditure, $1,513.34.

During the year 1903-04, the two outer corners of the wharf were renewed with hardwood, new fenders were put in at the head of the wharf, the flooring was repaired, and a portion of the flooring on the shore end which had to be renewed was replaced with gravel; other minor repairs were also made. Amount expended, $903.72.

During the fiscal year 1904-05, boulders on the east side of the wharf were blasted and removed. Amount expended, $365.64.

Spring tides rise 17 feet; neaps, 9 feet.

CHUTE MONTE À PEINE.

Chute Monte à Peine is a settlement in Joliette county, on River L'Assomption, some three miles from St. Jean de Matha, eleven miles from St. Felix de Valois on the Canadian Pacific Railway.

The wharf at this place being totally decayed, an expenditure of $1,000 was authorized this year for repairs. This structure was entirely rebuilt and now stands 110 feet long by 13 feet wide, and 10 feet high. The top and the upstream face have been sheated with 3-inch planks; steel plates, ½-inch thick and 5 feet wide, have been secured to the front sheathing and bent 1 foot on top, in order to protect the work against the action of the ice and logs. The wharf is now in fair condition.

These repairs were carried on by day labour at a cost of $999.99.

CLARKE CITY WHARF (SEVEN ISLANDS).

Clarke City is situated at the Bay of Seven Islands, Saguenay county, on the north shore of the Gulf of St. Lawrence, about 300 miles below Quebec.

The wharf is being built at a point called Pointe Noire, which is situated on the south shore of the bay; from there a railway line, 9 miles long, has been built to the falls of Ste. Marguerite river, where the North Shore Power Railway and Navigation

Company are constructing a dam and erecting a pulp mill of proposed initial capacity of 250 shipping tons, and final capacity of 500 shipping tons of pulp per day. This pulp will be carried on the railway from the mill to the wharf and there transferred on steamers.

During the session of parliament of 1903, the sum of $25,000 was voted towards the construction of a wharf at Pointe Noire, and during the session of 1904, a further sum of $60,000 was voted to buy from the North Shore Power Railway and Navigation Company the part of the wharf built by them, for the sum of $34,433.95, and a certain quantity of timber and iron to the value of $21,485.34 and to complete the work already begun.

By Order in Council, March 1, 1904, the transfer by the company was accepted, and agreement was entered into with the company, for the performance of the balance of the work required.

The work already done in 1903, by the North Shore Power Railway and Navigation Company and as bought by the department, consisted of a stone approach 575 feet long and one crib 200 x 30, sunk and built to ordinary low tide level.

Work was resumed on May 21, 1904, and continued till October 27, 1904, when two cribs, 200 feet long by 30 feet wide respectively had been sunk in place, the superstructure of these two cribs and of the other one sunk the year before, was built to 2 feet below the required elevation and the cribs were partly filled with ballast.

Spring tides rise 12 feet, neaps 5 feet.

Total expenditure during fiscal year 1904-05, $49,881.92.

COTEAU DU LAC.

The village of Coteau du Lac, in the County of Soulanges, is situated on the north shore of the St. Lawrence, 36 miles above Montreal.

Construction.—In 1888, the construction of a landing pier was commenced and was completed in 1889, at a cost of $6,918.71. It consists of a head block of solid cribwork, 101 feet long and 21 feet wide, with a cribwork extension, 40 feet long and 47 feet wide, built along the middle of its inner face, and a block and span approach 75 feet long and 26 feet wide. The outer face of the head block is 15 feet high above the bottom of the river, and stands in 10 feet of water at ordinary low water. Across the inner end of the extension to the head block, is built a freight shed of the full width of the extension and 20 feet long, with a passageway for vehicles underneath.

Repairs.—During the year 1894-95, sundry repairs were effected to the structure at a cost of $249.99. In 1896-97 most of the floor stringers and the whole flooring of the pier, which were decayed, were removed, new floor stringers were put in, the whole structure was refloored with 4-inch hemlock planks at a cost of $694.58.

In 1897-98, sundry repairs were made to the corner sheathing, capping, &c., at a cost of $200.41.

In 1903-04, the head block being decayed and dilapidated, was removed to low water level, and rebuilt with close-faced 12 x 12-inch timber.

These repairs were not quite finished during that year, the sum of $914.36 being expended.

During present fiscal year these were continued and completed at a cost of $710.75.

The pier was transferred to the control of the Department of Marine and Fisheries on August 28, 1896.

COTEAU LANDING.

Coteau Landing is the chief town of the county of Soulanges, situated on the St. Lawrence river, 2 miles from Coteau and 36 miles south-west of Montreal.

Construction.—In 1871, a mooring block was built by the department at a distance of 876 feet 7 inches from shore.

In February, 1872, a contract was entered into for enlargement of this block and for an approach to the shore, with a series of piers 8 x 12 feet and spans averaging 30 feet long. The head block was made 270 feet long and 24 feet 8 inches wide, with a 30 feet long icebreaker at its upstream end. The approach was built 876 feet 7 inches long and 12 feet wide, except for a length of 92 feet adjoining the head block, where it was made 24 feet wide. All the blocks are of openfaced cribwork filled with stone ballast. The head block stood 18 feet high in 12 feet of water.

Repairs.—Minor repairs were made to the pier in 1882 at a cost of $8.

In 1886, the structure having been damaged by ice, repairs to the extent of $1,544.12 were made.

From 1889 to 1892, all the cribs were pulled down to E.L.W.L. and rebuilt close faced, at a cost of $9,664.33.

In 1897, the stringers were renewed and the whole of the approach, and a portion of the head block refloored with 4-inch hemlock planks at a cost of $1,797.03.

During 1898, the outer face of the head block was resheathed with 6-inch hemlock at a cost of $314.20.

In May and June, 1902, the eastern half of the outer block was rebuilt from low water level and refloored with 4-inch hemlock planks, some stringers and the flooring of the approach were renewed, the roof of the storehouse covered with corrugated galvanized iron and other minor repairs made at a cost of $1,097.72.

In order to insure more permanency to the work, extensive repairs to the approach were undertaken and completed during the last fiscal year. The 25 cribs of this approach were pulled down to 1 foot above E.L.W.L., and concrete piers, 19 of them measuring at bottom 5 x 11 feet 10 inches, and the other 6 of the same width but 23 feet 10 inches long, with slopes of 1 in 12 on all faces and 3 feet high, were substituted. The space between each crib was spanned with 15-inch 42 lb. steel I-beams, laid from 3 feet 7 inches to 4 feet apart with proper 5-in channel connections, over which were securely bolted 5 inch x 8 inch tamarack timber to support 3 inch pine flooring. A substantial 1½-inch iron pipe railing with cast iron posts completed the repairs.

These were carried on, without interfering in any way with the autumn and spring traffic, by day labour, except the steel structure which was furnished and erected as per contract, by the Dominion Bridge Company for the sum of $3,600. The total expenditure during the fiscal year was $9,001.48.

The pier was transferred to the control of the Department of Marine and Fisheries in August, 1896.

CROSS POINT.

Cross Point, a village of Bonaventure county, is beautifully situated at the head of the Baie des Chaleurs, on the north shore of the Restigouche river, opposite Campbellton, N.B. The station of Cross Point, on the Atlantic and Lake Superior railway, is about two miles from the village. There is a ferry boat running from Cross Point to Campbellton.

In March, 1903, a contract was entered into for the construction of a wharf at this place; work was completed during the fiscal year 1903-04.

The structure is 455 feet long, 20 feet wide, except the outer end which is 35 feet wide, where the landing slip is built. It consists of a stone approach 60 feet long and 20 feet wide ; a cribwork abutment, 20 by 20 feet; two cribwork piers, 20 by 20 feet, placed at intervals of 20 feet; and one outer block, 275 feet long. The spaces between the abutment, the piers and the outer block are spanned with stringers. The whole wooden structure is covered with planks, and built of close-face cribwork, ballasted with stone.

This wharf is intended to be approached at high tides only; during low water spring tides its outer end is left dry.

Spring tides rise 11 feet.

During the last fiscal year 1904-05, the sum of $99.95 was expended in putting re-enforcing piles, at the head of the pier.

CUISSES D'ALMA.

Les Cuisses d'Alma, in the Little discharge of Lake St. John, is three miles from the lake, in the parish of St. Joseph d'Alma, and seven miles from the village.

There are three rocks, called the Cuisses d'Alma, and an island which obstruct the Petite Décharge.

In 1901-02, blasting was done on the east side. Amount expended, $575.92.

In the year 1902-03, the east side was completed and a portion of west side was done. Amount expended, $1,229.37.

During the year 1903-04, the continuation of the blasting of the two points obstructing the Little Décharge are now completed, and the work was continued on the island a little below. Amount expended, $1,477.59.

During the fiscal year 1904-05, the blasting of the little island was continued. Amount expended, $995.58.

DESCHAMBAULT.

Deschambault, County of Portneuf, is a flourishing village on the north shore of the St. Lawrence and the Canadian Pacific railway, forty-one miles above Quebec. A steamer plies semi-weekly to and from Quebec.

In April, 1904, the department purchased a wharf for the sum of $500 from 'La Compagnie des Bateaux à Vapeur de Deschambault et Lotbinière.'

During the last fiscal year, a channel approach to the wharf was cleared, some 7,000 feet long by 300 feet wide, boulders, reefs, &c., were removed by blasting. The work had to be done at low tides, when the 'batture' was left dry.

An expenditure of $333.60 was also incurred for taking care of timber, purchased in view of the construction of a new wharf.

On December 16, 1904, a contract was entered into with Mr. F. Bernier, for the construction of a landing pier, at this place. Contract price, $15,840.

The new wharf will be 274 feet long, and will consist: of an outer crib, 130 feet long and 48 feet wide on top, built of close-faced cribwork; a middle section 80 feet long and 26½ wide, built of open-faced cribwork; and the shore section, 64 feet long and 26½ feet wide, built of open-faced cribwork, with a batter of 1 in 1, for a height of 5½ feet from top, for the full length of the wharf, on the western face.

During the fiscal year 1904-05, the work has progressed very favourably, it is expected to be completed in October.

Total expenditure during 1904-05, $9,828.76.

DESJARDINS.

During its session of 1904, parliament granted the sum of $11,000 towards the construrtion of a wharf at Desjardins village, Allumettes island, on the River Ottawa, to accommodate the heavy traffic to and from Pembroke, on the opposite shore.

The wharf consists of an open-faced cribwork landing pier 120 feet long and 20 feet wide, built in 6½ feet of water at E.L.W.L. and an approach, 543 feet long and 16 feet wide at the top, built partly of open-faced cribwork piers, united by platforms, and stone rip-rap. The flooring is 8 feet above E.L.W.L.

A bulk sum contract, amounting to $9,953.67 for this construction, was awarded to Mr. Thos. Moran, June 8, 1904. Work began in August, 1904, and was completed in June, 1905.

Other works not provided for under the original contract were performed, viz.:

1. Changing of capping to form waling on approach to increase the width and to receive the base of standards for hand railing	$ 83 75
2. Addition of seven vertical fenders	59 50
3. Removal of floor system and pulling out of pile-work, head of Desjardins' old wharf	50 00
Extras paid to Mr. Thos. Moran	$ 193 25
Work performed by day labour amounted to	30 50
Cost of inspection	642 00
44 stone footings for the standards of hand-railing, on the rip-rap approach, were delivered at a cost of	132 00

Expenditure for fiscal year 1904-05, $10,957.42.

D'ISRAELI.

D'Israeli is a post settlement in Wolfe county, at the head of Lake Aylmer, and a station on the Quebec Central railway, some fifty-two miles north-east of Sherbrooke. It contains one Roman Catholic church, eight stores, two hotels, two lumber mills, one sash and door factory, telegraph, telephone and express offices. Population, 1,759.

The construction of the wharf at that place was begun by day labour at the end of September last. The work will consist of a close-faced 12 by 12 timber cribwork head block 50 feet by 36 feet and 17 feet high, standing fully ballasted with stone in 12 feet of water at mean level. A 30-foot steel span, composed of 15-inch 42 pounds I-beams with proper channel connections will connect head block with stone approach 200 feet long, 18 feet at top, with sides inclined 1 to 1½. A double 1½-inch iron railing, with 6-inch round cedar posts every 10 feet, will complete the whole structure.

At the end of present fiscal year, the stone approach had been completed and the crib head block about half so, at a cost of $4,990.62.

DOUGLASTOWN.

Douglastown, situated in Gaspé bay, is a village of fishermen and farmers, standing on the rising ground at the south side of the entrance to the St. John river; its population is between 1,600 and 1,800.

Gaspé bay possesses advantages which may hereafter render it one of the most important maritime places in the neighbourhood.

It contains an excellent outer roadstead off Douglastown. There is a harbour at its head capable of holding a whole fleet in perfect safety, and a basin, where large ships might be safely anchored and refitted, but there are no landing facilities, no shipping accommodation nor protection works for coasting craft. The roadstead, off Douglastown, is very extensive; vessels may anchor in any part of it, and in any depth from two to six fathoms over sand and clay bottom. There is, however, no shelter from winds between S.E. by E. and S.S.E., which blow directly into the bay and roll in a heavy swell.

In the early spring, when Gaspé bay and the entrance thereto are frozen over, the harbour of Douglastown is accessible, being clear of ice. Extensive lumbering operations are now in the way of increasing to a vast extent, both the local and export traffic in and around Douglastown, by the exploitation of extensive timber limits on the St. John and York rivers, and the erection of large saw-mills on the bar of Douglastown and Sandy Beach, some three and a half miles north-east of Douglastown.

On April 28, 1904, a contract was entered into with Messrs. Heney and Smith for the construction of an isolated pier, in the sum of $17,549.

The pier, when completed, will have a total length of 220, its inner end being at a distance of 1,780 feet from the shore; the width at bottom will be 30½ feet, and the sides will be built on the south side with a batter of 1 in 8, and on the other side with a batter of 1 in 12; the top will be 24 feet wide between the outer faces of the side face timbers.

Up to 2 feet above low water mark, the pier will be built in cribs of 110 feet; the superstructure will be built continuously, on the full length of the pier.

During the last fiscal year, two cribs, each 110 feet long, were placed in position, sunk and built up to high water mark.

The expenditure during 1904-05, amounted to $10,349.86.

Spring tides rise 5 feet; neaps, 3 feet.

ENGLISH RIVER.

St. Jean Chrysostome is a post village in Chateauguay county, Que., on the Grand Trunk railway, four and one-half miles from Aubrey station and nine miles from Howick, where the English river flows into the Chateauguay river. It contains one church, five stores, two hotels, one grist and saw mills, one cheese and butter factory and one tannery. Population of parish, 2,207.

Every spring during the freshets, the English and the Black rivers overflow and cause considerable damage to the village and parish of St. Jean Chrysostome, an area of over 2,600 acres of good land being held for several days under from three to 5 feet of water. In order to prevent, or at least considerably minimize these disastrous floods, it was decided to deepen the bed of the English river, from its confluence with the Black river, opposite the village of St. Jean Chrysostome, a distance of 500 feet down stream by a width of 60 feet. In this area, the bed of the river is solid rock, some 4 feet higher than the normal bottom, thus acting as a dam which causes the water to overflow upon the surrounding low lands.

During the fiscal year 1903-04, a steam rock drill and boiler was bought and installed, and a certain quantity of blasting done at a cost of $2,875.69.

This was continued during present fiscal fiscal year and the sum of $4,823.55 expended. The work done by day labour will be completed with the next fiscal year.

ESCOUMAINS.

Les Escoumains, in the County of Saguenay, is situated on the north shore of the River St. Lawrence, twenty-one miles below Tadousac. A very important saw-mill, the property of the Saguenay Lumber Company, is located here, there is also a Roman Catholic church, telegraph and post office and several stores.

The harbour of Les Escoumains was obstructed by boulders.

During the year 1902-03, the sum of $592.29 was expended in removing boulders.

During the year 1903-04, the blasting of the boulders, at the entrance to harbour, was continued. Amount expended, $198.25.

On May 7, 1904, a contract was entered into with Bernier & Beaulieu for the construction of a wharf.

Work was commenced on July 25, 1904, and suspended for winter on November 1; the work done consists in the sinking of two cribs, 110 feet and 87 feet in length; respectively, in the building of an approach, 153 feet in length forming a total length of 350 feet with a width of 25 feet and a height of 21 feet, at the outer end.

Spring tides rise 15 feet, neaps 9 feet.

The amount expended during 1904-05, was $8,420.

FABRE.

Fabre, a post village, eleven miles south of Ville Marie, on the Quebec shore of Lake Temiskaming, is the centre of a successful farming district of Pontiac county.

In 1903, parliament appropriated $2,000 towards the construction of a wharf in Lavallée bay. On account of difficulties experienced in the location of said wharf, no work was done during the fiscal year 1903-04.

The sum of $2,000 was revoted in 1904. On June 30, 1905, practically all required materials had been procured at a cost of $1,329.03.

The wharf is to be of pilework, having a frontage of 40 feet and extending a distance of 240 feet from 7 feet depth contour to shore, followed by a stone approach 16 feet wide at the top and two hundred odd feet long to the roadway. Floor elevation 12 feet above ordinary low water level.

Expenditure for fiscal year 1904-05, $1,329.03.

FATHER POINT.

Father Point, in the County of Rimouski, is situated on the south shore of the St. Lawrence, about six and a half miles from the village of Rimouski.

Since April last, this place was made the regular station of the pilots of the lower St. Lawrence.

Spring tides rise 15 feet, neaps 8 feet.

On November 8, 1901, a contract was entered into with Messrs. Heney & Smith for the construction of a wharf 600 feet in length, by a width of 40 feet at the bottom and 32 feet at the top, and a depth of 16 feet at the outer end, at low water spring tides.

The work was completed in May, 1904, when another contract, for an extension of 200 feet was entered into with the same parties on May 27 of the same year.

At the close of the past fiscal year, the work was much advanced.

The total expenditure during 1904-05, was $22,115.58.

GATINEAU POINT.

Gatineau Point village, in the County of Wright, is at the intersection of the Gatineau and Ottawa rivers, two miles from Ottawa.

During the fiscal year 1885-86, a cribwork wharf, having a frontage of 107 feet and a depth of 8 feet at lowest water, with approaches providing for the different stages of water level, was built at this place; also a pile-work retaining wall 230 feet long to protect the bank and roadway on the upstream side of the wharf. The expenditure being $3,850.84.

During the fiscal year 1889-90, the top of the retaining wall was raised 2½ feet to the level of the public road, and some gravel filling was done on the wharf at a cost of $584.01.

During the fiscal year 1895-96, minor repairs to the wharf were made at a cost of $18.

During the fiscal year 1896-97, ordinary repairs to the wharf amounted to $245.76.

During the fiscal year 1899-1900, some minor repairs to the wharf were made at a cost of $92.35.

At its session of 1904, parliament granted a sum of $2,300 for urgent repairs required on the wharf and retaining wall.

During the fiscal year 1904-05, the superstructure of the wharf was reconstructed at a cost of $2,171.04.

GEORGEVILLE.

Georgeville is a village on the eastern side of Lake Memphremagog, in the county of Stanstead, and eleven miles to the southward of the village of Magog, at the head

on the lake. It is a port of entry of considerable importance, and all steamers plying between Magog and Newport (State of Vermont, U.S.A.), call at the wharf.

The landing pier was built by subscription from the several steamboat companies, which kept it in repair until 1888 when its control was assumed by the government. At that time it had a total length of 210 feet and a breadth of 18½ feet, and was supported on six cribs; a wing, of 56 feet by 12 feet, had been added at the outer end where the depth available at ordinary low water was about 9½ feet. As originally completed, it stood 18 inches above extreme high water, but owing to a permanent rise in the lake caused by the construction of a dam at Magog, its top was, till 1888, level with the surface of the water, the consequence being that during periods of high water, or when the wind blew strongly from the south, the paddles of steamers fouled with the pier and received more or less damage. The top of the wharf including the arm down to low water mark, was moved bodily to the west by ice in the spring of 1888, and many timbers were either completely torn away or broken, the platforms also sustaining considerable damage.

During the year 1888-89, some urgent repairs were made; the top timbers of each crib, excepting the two shore ones, being renewed as well as the platforms and flooring over the whole surface of the wharf, at a cost of $661.43. In 1889-90, the sum of $1,995.27 was expended for the construction of two cribs 12 feet wide, 37 feet long and 16 feet high, which were set in front of and firmly bound to the two which actually formed the head of the wharf to increase its resistance against ice shoves. The whole wharf was rebuilt from low water mark and raised 2 feet higher than its former level. In the course of 1895, the approach to the landing block being defective, the municipality removed the flooring and platforms between the shore and the fifth pier, and filled the whole with a solid earth and stone embankment, 160 feet long. In 1897-98, some stringers were renewed and the whole outer block was replanked. A new waiting-room was also built at a total cost of $678.96.

In 1901, minor repairs to the flooring, &c., for $161.51 and in October 1903, for $78.57, were made.

During last fiscal year, more extensive repairs calling for an outlay of $1,016.70 were undertaken. These consisted chiefly in the removing of five tiers of timber from the front, and three tiers from one end of the wharf and the replacing of same with 12 by 12-inch timber. The head block was completely filled with stone and floored, the same as the approach with layers of sand and gravel one foot thick. The wharf is now in good condition.

GRANDES BERGERONNES.

Grandes Bergeronnes, Saguenay county, is on the north shore of the St. Lawrence, 18 miles below Tadousac.

The entrance to the river Grandes Bergeronnes being obstructed by boulders, a channel of about 150 feet was cleared from the entrance to the village, a distance of one mile.

In the years of 1887, 1895, 1899, 1901 and 1902, a total sum of $254.32 was expended.

During the year 1902-03, the work done was continued by day labour. Amount expended, $398.77.

During the year 1903-04, the work of clearing the channel was continued and a pier, 20 by 30 and 19 feet in height, was built. Amount expended for the construction of the pier was $239.30.

During the fiscal year 1904-05, the landing pier was completed; another pier was built 20 by 30 feet with an approach of 20 by 40 feet placed 25 feet from the outer block. The whole structure is completed, fendered, sheathed and fully ballasted. The wharf is at present of the following dimensions, 85 feet in length by 20 and 60 feet in width, the outer block having 20 by 60 feet, the height is 19 feet at the outer end.

The boulders around the wharf were removed and the cleaning of the channel of Grandes Bergeronnes was continued.

Expenditure during 1904-05 was $1,762.58.

Spring tides rise 16 feet, neaps 9 feet.

GRANDE VALLÉE.

Grand Vallée, County of Gaspé, is on the south shore of the River St. Lawrence, 68 miles below Ste. Anne des Monts, and about 45 miles by land from Gaspé basin.

With a view of affording much needed landing and shipping facilities to steamers, schooners and other small vessels calling at this place, as well as to give shelter to fishing boats in stormy weather, it was decided to build a breakwater at this place.

On June 29, 1901, a contract was entered into with Messrs. Heney & Smith for the construction of this wharf, near the mouth of the Grande Vallée river.

The structure has a length of 900 feet, a width of 25 feet on top at the inner end and 29 feet at the outer end, which is in a depth of 14 feet at the low water spring tides. It is built throughout of close face timber cribwork, with a batter of 1 in 10 on both sides, filled with stone and sheathed on the weather side with hardwood planks 6 inches thick. The top of the work stands 8 feet above high water spring tides.

Spring tides rise 9 feet.

The work was completed last fall, with the exception only of the iron corner straps not yet bolted into place.

The expenditure during the last fiscal year amounted to $15,098.90.

GRAND MÉCHINS.

On the south shore of the St. Lawrence, in the County of Rimouski, and thirty-five miles below Matane, are two villages called Little and Grand Méchins; the population consists chiefly of fishermen and men engaged in the lumber trade.

Owing to the cliffy nature of the beach the coast of the St. Lawrence, between Grosses Roches and Capucins, is of very difficult access to schooners or other craft. Apart from the roads which are bad and hilly, the means of transportation is by way of the St. Lawrence, but it entirely lacks of proper harbouring.

With a view to afford shelter for all craft and to provide for the necessary accommodations required by the inhabitants, it was decided to build a landing pier at Grand Méchins, that would meet all the requirements of the place.

Contract plans were prepared for the construction of a wharf 600 feet in length, with a depth of water of 16 feet at low water tides, at the outer end.

During the fiscal year ended June 30, 1905, timber was purchased for the sum of $3,487.16, which now is lying on the site of the proposed wharf, to be used in the construction.

Spring tides rise 13 feet; neap tides, 6 feet.

Total expenditure during 1904-05, $3,597.36.

GRONDINES.

Grondines, a post village in the County of Portneuf, is situated on the north shore of the St. Lawrence, forty-eight miles above Quebec, on the line of the Canadian Pacific Railway.

It contains a church, four stores, a saw-mill and a telegraph office. Two lighthouses are located at this place. A steamboat from Quebec calls here twice a week. Population of village 440; population of parish, 1,500.

In February, 1904, the department acquired a water lot and wharf at this place.

It was intended to enlarge the present wharf, the work to be done by day labour, but later, the department decided to let the work by contract.

The total expenditure during 1903-04, including materials purchased, &c., amounted to $4,395.60.

During the last fiscal year, a contract was entered into with Mr. Alphonse Lemay, for the construction of the proposed enlargement. Contract price, $14,500.

Work has progressed very satisfactorily, and it is expected that it will be completed in October, 1905.

Total expenditure during 1904-05, is $7,500.57.

GRINDSTONE.

Grindstone is a village on the south side of Grindstone island, four miles east of Etang du Nord. The population is composed mostly of Scotch farmers and Acadian fishermen.

For years past most of the freight for the Magdalen islands has been landed here and the building of a landing pier was greatly needed. In the fiscal year 1901-02, a landing pier was started; one hundred and fifteen feet of close-faced cribwork on an average width of 23 feet and of an average height of 15 feet was built.

An approach of 605 feet 25 to 50 feet wide and of an average height of 9½ feet on the outer face, was built along the eastern side of Grindstone cape.

The outside face of the approach, exposed to the ocean, is protected by a sheathing of split logs held in place by two sets of walings fastened by cross-ties and a double set of posts. A mattress of brush was laid under the stone filling, taken from the cape.

During the fiscal year 1902-03, the pier was extended 255 feet, with an average width of 25½ feet and an average height of 19 feet to coping or floor level.

In the fiscal year 1903-04, the pier was extended 200 feet with an average height of 22 feet and an average width of 28½ feet.

Six feet of the superstructure of the last 100 foot crib was built up in July and August, 1904. From August to October, a crib 100 feet long by 30 feet wide and 26 feet high was built ashore, where it will have to remain until the work is resumed.

The amount expended during the fiscal year of 1904-05, is $9,298.69.

Spring tides rise 4 feet; neap tides, 2 feet.

ILE AUX COUDRES.

The island has an area of 30 miles and is situated in the County of Charlevoix, 62 miles below Quebec. The distance from this island to the north shore of the St. Lawrence is about 1½ miles. Its population is 1,500.

In order to tie the new crib that had a tendency to turn over, a part of the old wharf and of the new extension was demolished and reconstructed; a great quantity of face timber that had been broken by the ice during the winter was replaced.

A part of the east side of the wharf was sheathed with hardwood and about one half of the flooring was made anew.

The expenditure for the fiscal year amounts to $1,937.27.

ILE AUX GRUES (SOUTH SHORE).

Iles aux Grues (Crane island), is in the River St. Lawrence, opposite Cape St. Ignace, in the County of Montmagny, about forty miles below Quebec.

Spring tides rise 20 feet, neaps 12 feet.

Farming is the chief occupation of the inhabitants.

The heavy repairs to the wharf, undertaken three years ago, were completed during the fiscal year 1904-05.

The superstructure of the shore end, upon a length of 200 feet and a mean of 10 feet was entirely renewed ; cedar was used for the face timber, cross-ties and longitu-

dinals, and spruce for the top planking and cap timbers. About 15 toise of stone ballast were added in, and 4 ladders were placed where needed. The sheathing of the outer face and 100 feet long on both sides, was renewed with elm and birch 6 inches thick, and the corners protected with iron straps $\frac{3}{8}$ by 4 inches. The work was performed during the months of August and September at a cost of $3,181.73.

ILE VERTE.

The village of Ile Verte, in the County of Temiscouata, is situated on the south shore of the St. Lawrence, 16 miles below Rivière du Loup, and 130 miles east of Quebec.

Spring tides rise 19 feet, neap tides, 12 feet.

During the fiscal year 1904-05, in order to improve the harbour, some work was done to remove boulders in the vicinity of the wharf ; the boulders were blasted and taken away on scows ; over 600 cubic yards of stone have been removed.

Repairs were also done to the wharf.

The expenditure during the last fiscal year was $800.

ISLE BIZARD.

Isle Bizard is a parish in the County of Jacques Cartier, on an island in the Lake of Two Mountains, five miles north of Pointe Claire and twenty-seven miles from Montreal.

In 1890, a pier was built consisting of four close-faced and stone filled cribs with ice-breakers, 20 x 30 feet at low water level and 20 feet square at top, placed at from 28 feet 9 inches to 31 feet 3 inches apart, and spanned with 12 x 12 inches floor beams and 3-inch pine flooring. An approach 43 feet long completed the structure at a cost of $8,708.42.

In September, 1904, extensive repairs were begun. The three top tiers of the three outer cribs were renewed, 12 x 12 inch vertical posts inserted at all corners and screw bolted securely to face and side ; the whole slanting face covered with $\frac{1}{4}$-inch boiler plates, and the shore abutment rebuilt 5 feet from top. The old stringers between each crib were removed and replaced by three 30-foot 18-inch steel I-beams, with 8-inch channel connections and 6-inch steel I-stringers bolted over and across 3 feet centre to centre, to support 3-inch pine flooring laid diagonally. An iron lattice running 176 feet 6 inches on both sides, with proper angle iron posts, completed the repairs. These were done by day labour, except the steel structure which was furnished and erected as per contract by the Phœnix Bridge and Iron Works Company, for the sum of $1,500.

The total expenditure during fiscal year was $2,885.47.

ISLE PERROT (NORTH).

Ile Perrot is in the St. Lawrence, south-west of the island of Montreal, between Lake of Two Mountains and Lake St. Louis. The island about seven miles long is in the County of Vaudreuil.

In 1897-98, a small wharf with a right of way on the north side of the island, was purchased from Mr. Joseph Leduc for the purpose of providing a convenient landing on the Ottawa river shore. This right of way is 400 feet long and extends from the public road to the wharf, the first 355 feet having a width of 30 feet, and the remainder, near the river, a width of 100 feet. The wharf is close to and parallel with the shore, and is 20 feet wide by 52 feet long.

In June, 1898, this wharf being found in a dilapidated condition and otherwise inadequate to the requirements of the traffic, a close-faced timber outer block, 50 feet long, 20 feet wide and 19 feet high, was built and sunk close to the old wharf,

in 13 feet of water. The work done by day labour, was completed, including approach, in June, 1899, at a cost of $3,328.71.

The village of Kamouraska, in the county of same name, is situated on the wharf damaged by ice repaired, and some stone placed to support the storehouse. This called for an expenditure of $40.41.

The wharf was transferred to the control of the Department of Marine and Fisheries in October, 1897.

KAMOURASKA.

The village of Kamouraska, in the county of same name, is situated on the south shore of the St. Lawrence, ninety miles below Quebec; it is a well known place, much frequented as a summer resort.

Spring tides rise 19·5 feet, neaps 12 feet.

In May, 1904, in order to provide shelter for schooners and other vessels, and upon the pressing request of the navigators and business men of the place, it was decided to repair the old block standing on the west side of the new wharf, and to connect it with the shore by a light cribwork, 175 feet in length, on a width of 20 feet. Part of this work was performed in May and June, 1904, it was completed during the fiscal year ended June 30, 1905.

An addition to the old block has also been built; it is triangular in figure, with sides of 98.75 and 40 feet on a height of 20 feet, the whole is now completed.

The expenditure during 1904-05, amounted to $1,499.02.

KNOWLTON LANDING.

Knowlton Landing is situated on the west shore of Lake Memphremagog, in the County of Brome and about 11 miles from the town of Magog. It is a summer resort.

During the fiscal year 1891-92, an extension to the pile wharf at this place was constructed. This extension of 51 feet by 75 feet was built of hemlock piles, covered with stringers and 3-inch planking, at a cost of $971.22. There is a depth of 9 feet at low water at the end of the present wharf, which will permit of the steamers calling at all stages of water.

During the next year, six fender piles were driven along the front of the wharf and three at each corner. A warehouse with waiting-room, 40 feet by 23 feet was built and covered with an iron plate roof.

In the fiscal year 1899-1900, all the stringers and planking were renewed, also the corners fender piled, and some repairs made to the storehouse and stone approach. The work was carried out by day labour at a cost of $714.12.

During March, April and June, 1904, several caps and stringers were renewed general overhauling of the flooring made and two iron nigger heads substituted for the old hemlock mooring posts. Expenditure, $176.52.

In July, 1904, these repairs were continued and completed at a further cost of $60.99.

LAC À BEAULIEU.

Lac à Beaulieu, in the municipality of Les Grandes Bergeronnes, is situated three miles north of the village.

The outlet of Lac à Beaulieu is obstructed by boulders and rock, which render the floating of logs very difficult.

During the year 1903-04, a certain quantity of boulders and a ledge of rock were blasted.

Amount expended, $297.76.

During the fiscal year 1904-05, the work of removing boulders was continued at the cost of $200.36.

Total amount of expenditure to July 1, 1905, is $498.12.

LAKE LABELLE.

Lake Labelle, 12½ miles long and ¼ to 1 mile wide, is situated in the county of Labelle, some 6 miles from Labelle village.

In order to improve the transportation facilities of the surrounding settlements, three wharfs were built on the lake; one at Damase Labelle's place, another at Dr. Brisson's, and the third one opposite the club house.

They all consist of an open face round timber stone ballasted crib head block, 31 feet 4 inches long and 21 feet 4 inches wide, standing 12 feet high in 5 feet of water, with crib and span approach 13 feet wide and 143 feet long at Labelle's, 20 feet long at Brisson's and at the club's.

The rights of way to these wharfs were given by their proprietors except the one at Damase Labelle's, some 720 feet long and 26 feet wide, which was sold to the Crown for the sum of $50.00.

All these wharfs, built by day labour, begun in April, 1905, and where completed at the end of June, at a cost of $1,225.27.

LAKE MEGANTIC.

Lake Megantic, between Compton and Beauce counties, has a length of two miles, a breadth of two to four miles with a coast line of over thirty-six miles. This lake and the rivers that empty into it are the head water of River Chaudière. Lake Megantic village, in Compton county, is on the Canadian Pacific railway, sixty miles from Sherbrooke. It contains two churches, one large saw-mill, a furniture factory, several stores, three hotels, telegraph office. Population, 1,883.

From 1882 to 1887, seven wharfs costing from over $5,000 to $7,000 were built on the lake, to accommodate the trade of the localities: St. Agnes, Lourdes, Flint, Victoria Bay, Ditchfield, Piopolis and Lake Megantic.

At the latter place some extensive renewals to the flooring were made in 1888-89, at a cost of $873.02.

In 1897-98, the wharf had to be repaired and raised 4 feet on account of the rise of the lake, caused by a dam constructed in 1895 by the Montague Pulp Company, across the Chaudiere river, at its outlet from the lake. Cost, $1,244.48.

In 1900, an open shed, 20 feet by 30 feet, was built at the head of the pier with a waiting room and small freight shed, at a cost of $302.08.

During September and October, 1900, part of the earth surface of the pier, that is 180 feet by 22 feet, was raised 15 inches at a cost of $346.75.

In November, 1903, minor repairs to the extent of $51.13 were made.

During last fiscal year, the head block was raised one foot, a new floor put on, the storehouse painted, the approach raised one foot and widened 6 feet with rip-rap on the side sloped 1 in 1. A guard railing completed the structure at a total cost of $1,149.03.

The wharf is transferred to the Department of Marine and Fisheries since July, 1887.

LANORAIE.

The village of Lanoraie is situated on the north shore of the St. Lawrence, in the County of Berthier, forty-six miles below Montreal. It has considerable trade in flour, grain and cordwood.

Construction.—In 1884, the construction of an isolated block 70 x 30 feet at the bottom and 54 x 27 on top, was commenced at a distance of 240 feet from shore; the work was completed in 1885, at a cost of $5,032.01. In 1885-86, the block was connected to shore by an approach of 240 feet long, 25 feet wide, and an average height of 12 feet, at a cost of $6,886.36. The upper or western side of this approach, for a height of six feet from the top, was built on a slope of 6 inches per foot and sheathed

with 4-inch tamarack planks, and the top of the approach was built on a grade of 4 feet per hundred. The depth of water at the head of the pier is 11 feet at extreme low water.

Repairs.—During the winter of 1887, the approach was damaged by an ice shove which curved it slightly towards the east. In April, 1891, it was again moved to the eastward by another ice shove which increased the pitch of the curve to 4 feet, at a distance of 80 feet from the head block, and removed two courses of face timber on a length of 42 feet, and face fenders on its lower or eastern side. Repairs were commenced on November 5, 1891, and completed on the 28th of the same month at a cost of $416.04. The missing face timbers and fenders were replaced and fender piles were driven 10 feet apart along both faces of the approach.

General repairs were effected to the pier in 1896-97, at a cost of $1,008.27. The face timbers, fenders and cap pieces were renewed where broken or decayed, and the sloping faces of the head block and of the approach were re-sheathed.

During the year 1898, the flooring of the pier was completely renewed with 3-inch hemlock deals, and general repairs were effected at a cost of $531.30.

During fiscal year 1898-99, the stone talus, in front of the wharf having been carried away by ice was rebuilt by day labour, at a cost of $588.77.

General repairs to flooring, &c., to the extent of $884.92 were made during fiscal year 1899-1900.

During November and December, 1901, a round timber ice-breaker was built along the whole western side of the approach. On the eastern side, braces 12 x 12 inches, every 10 feet, were placed at an angle of 45 degrees with the approach and secured at the bottom to a longitudinal piece also 12 x 12 inches, well anchored to the ground in a bed of rock. The whole work by day labour at a cost of $3,999.83.

Minor repairs in 1902-03 and 1904, to the extent of $64.18 and $10.61 respectively, were made.

During the year 1904-05, the sum of $674.20 was expended in the renewal of some stringers and the whole of the flooring.

LAPRAIRIE.

Laprairie is the chief town of the county of the same name, and is situated on the south shore of the River St. Lawrence, 7 miles above Montreal. It contains churches for the Episcopalians and Roman Catholics, a convent, an orphans' home, a foundry, a saw and carding mill, a brickyard, telegraph office, 5 hotels and about 20 stores. A steam ferry runs between Laprairie and Montreal, making several trips a day. The population is about 2,500. It is a beautiful spot, near Lachine rapids, much frequented in the summer.

In 1886, the government undertook to protect Laprairie from the disastrous effects of the spring floods and ice shoves of the St. Lawrence, by constructing ice breaking piers, a revetment wall of cribwork some 1,650 feet long and 20 feet wide along the shore of the river in front of the town, and at its upper limit an earth embankment 1,600 feet long.

In 1886-87, two ice piers were built 250 feet apart, at the upper end of the town, facing the St. Lawrence river, at a cost of $6,736.19.

In 1887-88, an earth embankment was constructed from the shore for a length of 1,600 feet, at the western limit of the town. A cribwork retaining wall was also built for a length of 480 feet half way between the eastern icebreaker and the Richelieu company's wharf. This wall was 20 feet wide 10 feet high from low water mark and filled principally with stone. Amount expended $4,989.75.

In 1888-89, 1889-90, another cribwork retaining wall 335 feet in length, from the Richelieu wharf westward, was commenced and completed to a height of 16 feet above low water mark, at a cost of $7,560.52. It was built of open cribwork 20 feet in width with a batter of one in 12 on the outer face.

In 1890-91, some general work was done in sheathing the walls previously built, at a cost of $658.58. In 1891-92 the retaining wall at the lower end of the town, adjoining the Richelieu wharf, was extended a further 131 feet, at a cost of $2,495.10.

In 1892-93, a further extension to the wall 420 feet long, was built to a height of 8 feet above low water mark, at a cost of $2,589.51.

In 1893-94, the remaining portion of the wall, built between the eastern icebreaker and the Richelieu wharf, 284 feet in length, was completed to a height of 10 feet, at a cost of $2,387.39.

In 1895-96, the sum of $2,015.51 was expended in constructing a stone protection work between the two icebreakers, the distance being 250 feet, and raising a portion of the retaining wall to an elevation of 15 feet above low water mark.

In 1896-97, 387 feet in length of cribwork wall was raised to the level of 16 feet, at a cost of $4,400.36.

In 1897-98, the revetment wall was completed to a height of 12 feet above low water mark, at a cost of $5,640.64. The whole of this work was built of round logs, filled with stone and sheathed with 3-inch pine planks.

During May and June, 1899, the earth embankment at the south-west of the village, in connection with the protection wall, was raised from one to two feet to the level of the said protection wall, on a distance of 1,000 feet; the riprap, from the icebreaker to the embankment, which was badly damaged, was renewed and put in good condition. The work was done by day labour at a cost of $1,659.86.

During 1901-02, the western icebreaker being found much decayed and dilapidated was removed, and a new one of the same size substituted. Cost $1,057.02.

In 1902-03, the eastern icebreaker was likewise removed and a permanent concrete structure erected in its place, at a cost of $3,653.49. It has a length of 40 feet by a width of 22 feet at the base and a height of 25 feet. The side facing the St. Lawrence is sloped 1½ in 1. Other repairs were made to the protection wall to the extent of $1,345.59, making the total outlay for the year, $4,997.08.

During July and August, 1903, further repairs to the protection wall were made by day labour, at a cost of $818.74. Two sections known as Nos. 2 and 4 of this wall being found too much decayed for ordinary repairs, it was decided to replace them by a substantial concrete wall.

To this effect, in November, 1903, after tenders had been called for, a contract was entered into with Messrs. Amiot and Lemay, of Montreal, for their construction at a cost of $29,650. The new walls were built in front of the old wooden ones, the space between the two being filled with stone, at distances varying from nothing to 5 feet; they have a cross section of 7 feet 8 inches at the bottom with the outside face inclined 1 in 12 and the back with recedes of 2 feet at a height of 4 feet and of one foot at a height of 9 feet with further batter of one in 12 from a height of 15 feet to the top. The height of the walls was to be 18 feet according to specifications, but in order to add still better protection to the town, it was deemed advisable to modify this to 19½ feet thereby reducing width at top, on account of the two batters, from 3 feet to 2 feet 9 inches. Two 1½-inch anchor bolts with 1 foot square and 1-inch thick iron plates connect, every 20 feet, the new wall with vertical post securely bolted inside the face of the old wall. Six inch vitrified drain pipes inclined 1 in 12 from the lower recede were inserted every 50 feet.

The outside face of wall was strengthened on account of added height with 1¼-inch iron bars 16 feet long placed every 5-foot section. No. 2 has a face length of 413 feet with angle wings of 26 and 16 feet, and section No 4 a length of 334 feet with returns of 19 and 14 feet.

At the end of June, 1904, the work was about half done, at a cost of $14,072.30, making total expenditure for the year $14,951.04.

During 1904-05, the above contract was continued, sections 2 and 4 being completed at the beginning of September at a further cost including extras of $18,195.53.

In the spring of 1905, it was decided to have the contractors commence the construction of section No. 1, near the icebreaker, as a further extra to main contract and at the schedule of prices contained therein. To the end of June, a supplementary sum of $6,128.45 had been expended, making the total outlay for the year $25,494.07.

LES ÉBOULEMENT.

Les Eboulement is a village of the County of Charlevoix, with a population of about 1,000, situated on the north shore of River St. Lawrence, 70 miles below the city of Quebec. This place is quite frequented by tourists as a summer resort.

During the present year four mooring posts were replaced also three lengths of face timber. The flooring was renewed in many places and a few floor stringers were put in.

The expenditure for the fiscal year amounts to $25.40.

LES ÉCUREUILS.

Les Ecureuils, a village in the County of Portneuf, is situated on the north shore of the St. Lawrence, 28 miles above Quebec. It is distant from any railway communications and difficult to approach by water.

Population 600.

During the last fiscal year, the landing pier, which was not sufficiently large for the local traffic, was enlarged by the addition, at its outer end, of a head block, 45 feet long, 30 feet wide and 16½ feet high.

The structure is of close faced square timber cribwork, sheathed the full height with 3-inch spruce deals; the flooring is of 3-inch pine deals.

The old wharf was also strengthened and the 3-inch sheathing almost entirely all renewed; repairs were made to the freight shed including painting of same. A small waiting room of 10 by 15 feet was also supplied for public accommodation, the wharf being completely isolated from the village and shelter.

Owing to the undermining, by water from the cliff, of the inshore gravel embankment, a large excavation was made on west side and filled up with stone, taking about 200 loads well placed and packed with under surface drainage outwards to beach.

Guard rails were placed on narrow part of old wharf.

The expenditure during 1904-05, was $3,396.22.

LE TABLEAU (DESCENTE DES FEMMES).

Le Tableau (Descente des Femmes), is a new settlement on the north side of the River Saguenay, about 61 miles from its mouth. To promote colonization in that part of the Saguenay district, which has no other communication than by water, it was decided to build a wharf at this place.

During the year 1902-03, a block, 40 feet in length, 30 feet in width with a return of 30 feet by 25 feet and two piers 25 by 25 feet placed 25 feet apart, were commenced.

The block was sunk in 18 feet of water. The block and the return forming an 'L' are built of close-faced timber, 11 by 11 inches sheathed at the outside corners with hardwood.

There is a landing slip on the outer block and one in the return on the west side. The piers are built of round logs open-faced.

Amount expended $5,033.71.

During the fiscal year 1903-04, the work was continued and an approach was built. The corbels were laid as well as part of the stringers.

The outer end of the structure is 38 feet high on top of stringers. The work was done by day labour.

Amount expended $2,970.

The wharf is 193 feet in length and 25 feet in width. The outer block, 30 by 40 feet high, is not completed.

During the year 1904-05, the work was damaged by ice and had to be reinforced, the stringers and corbels were completed, fenders of 8 by 10 inches were on, and part of the planking done.

Expenditure $987.24.

Spring tides rise 17 feet, neaps 9 feet.

LOTBINIÈRE.

The village of Lotbinière, in the county of the same name, is situated on the south shore of the St. Lawrence, about 40 miles above Quebec. It has no railway communication and entirely depends for exchange of supplies on bateaux and steamers from Quebec.

Spring tides rise 14½ feet, neaps, 8½ feet.

In 1897, the department constructed at this place, an isolated block, connected to the shore by a removable approach of trestle bents.

On May 7, 1904, a contract was entered into for the construction of a permanent approach from the shore to the isolated block. Contract price, $13,400.00. At the end of the fiscal year 1903-04, work was commenced but not completed.

During the fiscal year 1904-05, the work under contract was completed.

A sum of $4,000.00 was granted for repairs to the old block, but only a small amount could be used, owing to the impossibility of procuring the necessary timber.

Some 3,200 pounds of new ⅝-inch steel plates and 6 sheets of old plates were laid on old block; guard cast iron posts with two strands of No. 9 wire were placed on both sides of new roadway; the length protected by wire is 500 feet from shore out. The posts are arranged to be removed in the fall on account of ice going over wharf.

Before the end of the fiscal year, timber and materials, to carry on repairs during ensuing fiscal year, were procured.

The total expenditure during 1904-05, is $10,719.99.

LOWER ST. LAWRENCE, REMOVAL OF ROCKS.

Small expenditures were incurred at the following places for removal of rocks, &c. This work, which has been going on for some years, has proved of great benefit to fishing communities interested.

Newport, Gaspé county	$ 31 01
Little River East, Gaspé county	125 00
Roche à Menon, Gaspé county	25 00
Grand Pabos, Gaspé county	100 00
White Head, Gaspé county	25 00
Ste. Anne des Monts, Gaspé county	25 00
Grande Tourelle, Gaspé county	76 00
Cap d'Espoir, Gaspé county	75 00
Grande Rivière, Gaspé county	150 00
Little Pabos, Gaspé county	25 00
Chien Blanc, Gaspé county	50 00
Jersey Cove, Gaspé county	304 40
Little River West, Gaspé county	75 00
Petite Vallée, Gaspé county	50 00
Cap Chat, Gaspé county	90 50
Cape Cove, Gaspé county	200 00

MAGOG.

Magog, a thriving incorporated town, is on the Magog river, at the outlet of Lake Memphremagog, in Stanstead county, and a station on the Canadian Pacific Railway, three hours from Montreal. It is a sub-port of entry and contains four churches, thirty stores, four hotels, saw and grist mills, Dominion Cotton Company's mills with 800 operatives, three bakeries, one carriage factory, one newspaper, two telegraphs, two express offices and good schools. Population, 3,516.

In order to accommodate the local trade, a landing pier was purchased in August, 1875, for the sum of $2,500.

It is situated opposite the railway station, and consists of a pile structure 430 feet long, 24 feet wide for the first 305 feet from the shore, and 40 feet wide for the remaining 125 feet. Its head is 12½ feet high above the bottom of the lake, and stands in 7½ feet at low water.

Repairs.—In 1896-97, the most urgent repairs to the flooring were effected at a cost of $154.82. In 1899, a number of broken planks in flooring were renewed at a cost of $49.00.

During the year 1899-1900, three-fourths of the flooring was renewed and a new storehouse and guard railing built, at a total cost of $530.07.

In 1901-02, minor repairs were made at a cost of $11.34.

During 1903-04 extensive repairs were begun. The landing pier had become dangerous owing to decay, and the roadway was in a bad state. The latter, the property of the C. P. R. was moreover very incommodious and a change of site was decided upon. To that effect, permission was obtained from the town council to build a stone approach, from the foot of Lake street to the head of the pier, a distance of 200 feet; it was made 26 feet wide at the top with ordinary slopes. The head block was lengthened 8 feet by its whole width, 40 feet, and caps, stringers and flooring were entirely renewed.

These were about one third finished at the end of June, 1904, at a cost of $1,806.58, and completed in 1904-05, at a further expenditure of $3,241.13.

MAGUASHA.

Maguasha is situated in the Baie des Chaleurs, in the County of Bonaventure, opposite the town of Dalhousie, New Brunswick, at the entrance to the river of the same name, twelve miles from Carleton. The nearest railway station is 'La Nouvelle,' on the Atlantic and Lake Superior Railway.

On June 18, 1904, a contract was entered into for the construction of a wharf at this place, in the sum of $7,500.

It consists of a stone approach 21 feet long, 20 feet wide on top with sides and end sloping 1 in 1 ; three cribwork piers 20 by 20 feet with spans of 20 feet; and an outer block 180 feet by 20 feet, the whole built of open-face cribwork, covered with 6-inch sheathing. The top of the flooring stands 4 feet above high water spring tides, or 13 feet 5 inches above low water spring tides.

Spring tides rise 9 feet 5 inches.

This wharf was built and completed during the fiscal year 1904-05, at a total expenditure of $3,695.

MARIA.

Maria, Bonaventure county, is a prosperous village on the north coast of Baie des Chaleurs and a station on the Atlantic and Lake Superior Railway, about ten miles north-east of Carleton. Population, 2,300.

During the fiscal year 1902-03, the department constructed a wharf at this place. The structure has a total length of 932 feet, a uniform width of 20 feet, covered with 3-inch planks.

Spring tides rise 9 feet.

During the last fiscal year, the sum of $502.50 was expended in improving the road leading to the wharf.

MASSON.

Masson village, also known as Buckingham junction, Labelle county, is situated on the Lièvre river which empties into the Ottawa one mile below. In the opposite direction—three miles upstream—the Lievre furnishes extensive water power which is the 'raison d'être' of several flourishing industries in the town of Buckingham. The population of this district is about 6,000. The traffic warrants the improvement of navigation facilities.

At its session of 1904, parliament appropriated $5,000 towards the construction of a wharf on the River Ottawa near the mouth of the Lievre river.

During the fiscal year 1904-05, construction of a permanent wharf was commenced. When completed, it will consist of a head block 30 feet by 90 feet providing for a depth of 8 feet at lowest water, with landings for the different stages of water level, and connected to the shore by means of two approaches 195 feet and 100 feet long respectively by 18 feet wide at the top. The understructure is of close-face cribwork and the superstructure of concrete cribwork, structural steel and dry masonry.

On June 30, 1905, the understructure had been built and 80 per cent of the required materials had been procured.

Expenditure during fiscal year 1904-05, $5,063.60.

MATANE.

The village of Matane in the county of Rimouski, is situated on the south shore of the St. Lawrence, at the mouth of the River Matane, 240 miles below Quebec, and thirty miles from Little Metis station, the nearest point of the Intercolonial railway.

It contains extensive saw-mills and a spoolwood factory.

Spring tides rise 14 feet; neap tides, 7 feet.

The breakwater, standing on the west side of the mouth of the River Matane, was badly damaged by ice and had to be partly reconstructed. It consists of piers on which is laid a flooring, with a sheet piling in front; it runs parallel to the river and has a total length of 500 feet by a height of 23 feet on the seaward face.

During the last fiscal year, the breakwater has been thoroughly restored; the piers were so badly damaged, that in order to secure the sheet piles and ensure stability to the whole structure, auxiliary cribs had to be built in the openings between the old piers. The sheet piling was entirely renewed with spruce 10 inches thick, each piece being sunken into the bottom as much as possible.

The flooring has also been repaired and a large quantity of stone ballast added.

A large quantity of the materials were purchased and paid for out of the last year's appropriation, but all the work was done during the last fiscal year by day labour.

Total expenditure during 1904-05, $1,878.36.

MILLE VACHES.

Mille-Vaches is a village in the County of Saguenay, situated on the north shore of River St. Lawrence, about forty-two miles below Tadousac. It contains one Roman Catholic church, three stores, two blueberry factories, one saw-mill, telegraph and post office. Population about 600.

During the fiscal year 1904-05, a certain quantity of timber was bought in view of the construction of a wharf, at this place.

Amount expended, $1,003.14.

MISTOOK.

Mistook, in the township of Taillon, on the Grande Décharge of Lake St. John, in the County of Chicoutimi, is also called St. Cœur de Marie; it contains one Roman Catholic church, post office, several stores, two cheese factories and two saw-mills.

During the year 1903-04, a pier 40 feet long at bottom and 30 feet at top, by 30 feet wide and 23 feet high was sunk at 150 feet from high water mark. It is built with an ice-breaker in front, sheathed with 9-inch hardwood, and a landing slip on the outside face. The pier is built of round logs open-face cribwork fendered at every 8 feet; the work was done by day labour. Amount expended, $2,059.

During the fiscal year 1904-05, the wharf, which was commenced in 1903-04, was continued, five piers of 20 x 25 feet were sunk in place.

Amount expended, $5.001.05.

MONT LOUIS.

Mont Louis, a village of considerable importance and the first municipality below Ste. Anne des Monts, is 135 miles below the nearest Intercolonial Railway station, Metis. The harbour of Mont Louis, the largest and best situated on the St. Lawrence, Gaspé coast, offers good water and good protection against all winds except from northly winds.

The landing pier, being from the west shore towards the east outside point of the bay, will, when completed, shelter against northerly winds.

Two cribs forming a total length of 185½ feet by 25 feet wide were built and completed, with the exception of the flooring and 100 feet long by 7 feet high of the shore end superstructure.

The depth at the outer end is 15½ feet at low water spring tides.

Spring tides rise 9½ feet; neap tides, 5 feet.

The expenditure during the last fiscal year is $3,003.25.

MONTREAL HARBOUR—LOWER DIVISION.

Maisonneuve.

On July 25, 1900, a contract was entered into with Messrs. Poupore & Malone, for the construction of a high level pier and two bulkheads in the lower division of the Montreal harbour. Contract price, $631,033.33. Work was commenced during the same year. During the fiscal year 1900-01, the expenditure amounted to $49,-296.45; in 1901-02, to $201,722.69; in 1902-03, to $251,320.47 in 1903-04 to $209,104.96.

During the last fiscal year the fourth season of actual work on this wharf the W. J. Poupore Company, Limited, successors to Poupore & Malone, performed the following works:

As the sinking of cribwork sections was completed in 1903, the items of work consisted only in laying footing blocks of concrete, in building concrete walls and in earth refilling in rear of walls, the material for refilling being excavated from the two basins adjoining the new pier.

The length of footing block foundation laid was: 780 feet in 1904 and 150 feet in 1905.

The length of wall, built to the level of 18 feet above datum, was 1,927 feet in 1904.

In 1905 the building of concrete walls to full height of 28 feet above datum was resumed on the west wall, and a length of 1,143 feet built from May 16 to June 30, 10 feet high.

The refilling behind walls was carried on and a quantity of 137,900 cubic yards deposited, from July 1 to November, 1904, and 4,200 cubic yards in June, 1905, forming a total for the fiscal year of 142,100 cubic yards measured as refilling.

The quantities of each item were as follows :—

	Cubic yards.
Concrete footing blocks laid	1,576
Concrete in monolithic walls	5,215
Concrete in extra height of 5 feet	1,328
Excavation for refilling	142,100

The expenditure for the fiscal year 1904-05, was $74,442.69.

MURRAY BAY.

The village of Murray Bay or Malbaie has a population of 3,500: it is situated on the north shore of the St. Lawrence, at the mouth of the River Malbaie, eighty-three miles below Quebec.

During the last winter, both corners of the wharf were badly cut by the ice, at the low water mark, all the stone of the two corner compartments had fallen into the river. The hardwood sheathing of the mooring face had also suffered considerable damage from the ice, these damages were repaired during the early spring of the fiscal year 1905.

At the request of the Department of Marine and Fisheries which run a ferry boat, the steamer *Champlain*, from Murray Bay to Rivière Ouelle, in connection with the trains of the Intercolonial railway, a new freight shed, office and waiting-room were constructed in prolongation of the existing buildings, on the east side of the wharf.

The expenditure for the fiscal year 1904-05 amounts to $3,081.29.

NEW CARLISLE.

New Carlisle, a seaport town and port of entry, the shiretown of Bonaventure county, is beautifully situated on the north shore of Baie des Chaleurs. It contains 2 churches, 2 hotels, several stores, a telegraph office and a printing office. It is the present northern terminus of the Atlantic and Lake Superior railway.

A pier, 606 feet long, from 29 to 49 feet wide, reaching 15 feet water at L.W.S.T., was built by this department between 1881 and 1883.

During the last fiscal year the sum of $4,066.89 was expended on urgent repairs.

NEWPORT.

The village of Newport, in the county of Gaspé, is situated at the mouth of the river of the same name, on the north shore of the Baie des Chaleurs, 88 miles east of Campbellton, N.B., and 50 miles west of Caplan.

Spring tides rise 4½ feet, neaps 2½ feet. The population of the village is extensively engaged in fishing, which is carried on almost to the exclusion of all other pursuits.

In 1884, some harbour improvements were commenced which were completed in 1887. The works consisted of two parallel piers; the west pier 75 feet long and the east pier 230 feet long.

During 1900-01, a breakwater was commenced at a point called 'Les Islets'. It is built of close faced cribwork with the following dimensions :—length on top, 160 feet with bridgeway approach to shore, over rocky ridge of 30 by 15 feet, built of 3-inch deals spiked on to beams or stringers. Length of structure at bottom, 150 feet; average width, 25 feet 9 inches; total height, at outer end to top of flooring, 16 feet; depth of water at outer end, low water spring tides, 4½ feet.

On October 17, 1903, a contract was entered into with Messrs. Lyon and White for the construction of a 200 foot addition to the breakwater.

During the last fiscal year, 1904-05, 100 feet of the addition was built to high water level.

The expenditure during 1904-05, amounted to $4,450.96.

NEW RICHMOND.

New Richmond, Bonaventure county, is situated on the Baie des Chaleurs, some 60 miles by rail from Métapédia, on the line of the Atlantic and Lake Superior railway.

It contains two churches, several schools, stores, saw-mills, shingle mills, one grist mill and one planing mill. It is one of the largest lumber manufacturing centres in the Baie des Chaleurs. A powerful company has been formed for the exploitation of the pulp industry, on the Little Cascapediac river. Large quantities of railway ties are manufactured and shipped to the United States.

Population, 2,500.

Spring tides rise 6½ feet.

On July 8, 1904, a contract was entered into for the construction of a landing pier, in the sum of $14,400.

Work was commenced at once and the landing pier and approaches completed by the end of the fiscal year 1904-05.

The work, as completed, consists of a stone approach or embankment 15 feet long and 20 feet wide, with side and end slopes of 1 in 1 : a cribwork abutment 20 by 20 feet, 19 cribwork piers, 20 by 20 feet, and an outer block, 100 feet long by 30 feet wide, placed at intervals of 20 feet and spanned with stringers.

It is built of continuous open face round timber cribwork filled with stone ballast.

The top of the flooring, at the outer end, is 5 feet 5 inches above high water spring tides.

The expenditure during the last fiscal year, amounted to $13,245.37.

NOMININGUE.

Nominingue, on the lake of the same name, is a post village in Labelle county and the terminus of the Canadian Pacific railway, Laurentian Mountains branch, twenty-three miles north of Labelle and 124 miles north-west of Montreal. It contains one Roman Catholic church, one convent, five hotels, saw and grist mills, several stores and a telegraph office.

During the fiscal year 1903-04, the construction by day labour of five wharfs, all of the same head dimensions, was commenced; two on Lake Grand Nominingue, two on Lake Petit Nominingue communicating with preceding by River Sawga, and one on Lake Bourget about one mile from the village.

The main object of these wharfs was to facilitate the transportation by water of passengers and general freight from the surrounding townships, thereby avoiding long distances through very bad roads.

They consist of a round timber open-faced cribwork block 31 feet 4 inches long, 21 feet 4 inches wide and 12 feet high standing in 5 feet of water.

The approaches are of different nature and dimensions as follows :—

At Corbin's, 13 feet wide and 148 feet long, of which 108 of stone and 40 feet crib and span.

At Rodier's, 13 feet wide, 120 feet long formed of three cribs and spans.

At Rivet's, 30 feet wide all stone with slopes 1 in 1 and 104 feet long.

At Labelle's, 13 feet wide and 58 feet long formed of one 20-foot span and 38 feet stone.

At Laroche's, 13 feet wide and 12 feet long span.

During 1903-04, the sum of $2,017.22 was expended. During 1904-05, the wharfs were completed with a further outlay of $2,137.20.

NOTRE-DAME DU PORTAGE.

On the south shore of the St. Lawrence, six miles west of Rivière du Loup, in the County of Temiscouata, is situated the village of Notre Dame du Portage, which, is resorted to by tourists in summer.

Spring tides rise 19 feet ; neaps, 12 feet.

To meet the requirements of the place, it was decided to build a wharf. Work was commenced in the month of September, 1904.

When completed, the new wharf will have a total length of 400 feet by a width of 20 feet together with a stone approach 50 feet long and an 'L' wing of 50 feet in length and 30 feet wide.

At the close of the fiscal year, about two-thirds of the work was done.

The expenditure during 1904-05, amounted to $8,043.70.

PASPÉBIAC.

Paspébiac, a seaport in Bonaventure county, is situated on the Baie des Chaleurs, sixty-eight miles south of Percé and eighty-five miles north of Campbellton.

The line of the Atlantic and Lake Superior railway extends as far as Paspébiac, where freight is delivered.

It is an important fishing station, it having been for over a century, the headquarters of the great fishing firm of Charles Robin & Co., of the Island of Jersey.

It contains two churches, one telegraph office, one hotel, several stores and two large establishments.

The population of the village is 1,000, mostly engaged in the fishing industry.

During the fiscal year 1903-04, a contract was entered into for the construction of a wharf at this place. Contract price, $19,695.

The work under contract consisted of: a stone and earth approach, 30 feet wide on top and 50 feet long, with slopes of 1 in 1 ; a shore abutment, 20 feet long by 30 feet wide; three blocks, 20 by 30 feet; an outer block, 240 feet by 30, built of three separate cribs, 85, 85 and 70 respectively, all of close-face cribwork, filled with stone and sheated with hardwood on the seaward side. The spaces between the abutments, piers and outer block are spanned over with 10-inch by 12-inch stringers. A landing slip, 70 feet long, is situated on the northern side of the outer block. The entire structure is covered with a 3-inch spruce flooring.

Total length of wharf, including approaches, 450 feet. Depth of water at outer end, 15 feet at low water spring tides. Top of flooring 5 feet above high water spring tides.

Spring tides rise 7½ feet.

At the close of the fiscal year of 1903-04, work had been done to the amount of $5,705.82.

During 1904-05, the wharf was completed and the road leading thereto was built by day labour.

Expenditure during last fiscal year, $16,641.24.

PEEL HEAD BAY.

Peel Head Bay, in Missiquoi county, is at the head of Missiquoi bay, an arm of Lake Champlain, three miles from St. Sebastien, in Iberville county, and nine miles from Stanbridge on the Canadian Pacific railway.

The large traffic of hay besides coal and general merchandise carried on at Peel Head bay, made urgent the construction of the wharf in this locality. To that effect, a right of way of irregular form, of an area of 33,928 square feet and including an old stone wharf and new hay shed 60 feet by 40 feet was bought from Mr. Jamieson at a cost of $1,500.

It was the intention at first to build the head block of wharf, 96 feet long, 32 feet wide and 15 feet high, standing in 5 feet of water, of close-faced 12 x 12-inch spruce timber, but this was modified later, and a superstructure of 12 x 12 concrete members on the Fraser system was adopted from low water level. Work on the wharf proper had not yet begun in June last.

A stone approach 18 feet wide at top, for a length of 120 feet from head block, and 25 feet wide for a length of 295 feet to the public road, the whole with sides inclined 1 in 1 will be built. Expenditure during the year 1904-05 was $1,758.34.

PERCÉ.

Percé is the shiretown of the County of Gaspé, it is situated on the Gulf of St. Lawrence, thirty-six miles from Gaspé basin. It is one of the most important fishing stations on the coast of Gaspé, and its population numbers about 2,500.

A breakwater was constructed in the South Beach in 1888 and 1899.

During the last fiscal year the freight shed and waiting-room on the North Beach wharf, was completed. The wharf on the South Beach, which was badly damaged was repaired, the outer end, the north-east side and 50 feet of the south-west side were sheathed with spruce piles, driven 5 to 10 feet in the bottom and bolted to face-timbers. The work was done by day labour.

Spring tides rise 5 feet, neaps 3 feet.

The expenditure during 1904-05, amounted to $2,068.95.

PETITE PERIBONKA.

La Petite Péribonka, in the County of Chicoutimi is situated on the west side of La Grande Péribonka, near its mouth.

The pulp mill is situated at four miles above the Grande Péribonka.

During the fiscal year 1904-05, part of the snags and obstructions in the channel were removed. Amount expended, $627.76.

PETITES BERGERONNES.

Les Petites Bergeronnes, in the parish of Les Bergeronnes, is situated on the north shore of the St. Lawrence, fourteen miles below Tadousac.

There is an important saw-mill on the River Petite Bergeronnes.

The entrance to and the River Petite Bergeronnes being obstructed by boulders, work was done to clean the channel, up to the saw-mill.

Amount expended during the year 1903-04, $904.71.

During the fiscal year 1904-05, the removal of boulders in Petite Bergeronnes was continued.

Amount expended, $898.58.

Spring tides rise 16 feet, neaps 9 feet.

PIERREVILLE.

Pierreville, a thriving post village in Yamaska county, on the River St. Francis, near its entrance into the St. Lawrence, 28½ miles north-west of Sorel, the actual terminus of the South Shore railway.

It contains one Roman Catholic church, 1 telegraph office, about a dozen stores, saw, grist and carding mills, and has a very extensive lumber trade. Buckskin gloves, mitts and shoes and baskets are made here in large quantities by a tribe of Abenaquis Indians. Ship building is also engaged in. Population of the village, 1,108.

By the fact that the private wharf at Pierreville is situated above the bridge of the South Shore railway and that barges and vessels cannot pass under the bridge, it was decided to build a public wharf immediately below it. A right of way, from the public road to the river, was purchased, part from Mr. Jos. Rasconi, of Pierreville, and part from the Abenaquis Indians for the total sum of $700.

On June 30, 1904, the work was not commenced, but materials had been procured for the sum of $3,816.91.

Work on the wharf proper was commenced by day labour in September, 1904, and completed by the end of June, 1905.

The structure consists :—

1. Of a pile wharf, 150 feet long, 48 feet 4 inches wide, and 13 feet high, standing in 5 feet of water, with icebreaker inclined 1½ in 1 at its upstream end and double slip along the face.

2. Of an earth approach about 400 feet long, from 30 to 15 feet wide, with riprap slopes properly inclined on both sides.

3. Of a shed for storage purposes erected on stone pillars, near the approach.

Total expenditure during fiscal year was $8,369.61.

POINTE À ELIE.

Pointe à Elie is the extreme south easterly point of Allright island, 2 miles east of the House Harbour Catholic church.

The steamer 'Amelia' calls at Pointe à Elie for mails and freight, and for shelter during north easterly gales.

The construction of a landing pier and breakwater will give the best of shelter from all storms and especially from easterly gales that prevail in the spring.

During the fiscal year 1902-03, a length of 115 feet by 22½ feet wide of the pier proper was built; 850 feet of roadway, from 25 to 50 feet wide, and of an average height of 9 feet, was built of stone, with a timber facing held in place by walings, posts and cross-ties.

During the fiscal year 1903-04, 195 feet of cribwork was constructed 24½ feet wide.

During the last fiscal year a crib of 100 feet long by 26 feet wide was built and secured into position. Seven feet of the superstructure remains to be done.

The depth of water at the outer end of the work is 15 feet, at low water spring tides.

The expenditure during the last fiscal year is $6,389.89.

Spring tides rise 4 feet ; neap tides, 2 feet.

POINTE AUX ESQUIMAUX.

Pointe aux Esquimaux, in the County of Saguenay, is situated on the northern shore of the River St. Lawrence, 525 miles below Quebec.

It is the chef lieu of that district of north shore and contains a Roman Catholic church, one convent, an hospital, three stores, telegraph and post offices. It is the most important fishing place on the north shore ; its trade consists mostly of fur, fish and oil.

The wharf purchased by the department in 1895, had a length 125 feet and a head block of 30 feet.

In 1895-96, the wharf was lengthened 60 feet, by the construction of a block, 30 by 30 and 42 feet in height, connected with the old work by a platform 30 feet in length; the wharf is now 198 feet in length by 41 and 30 in width; the depth of water, at its outer end is 24 feet at low water. Amount expended, $4,028.42.

During the year 1902-03, a block of 30 by 30 and 50 feet high in 41 feet of water, was built 15 feet from the wharf to which it is connected by stringers 8 by 10 inches, supporting a flooring of 3-inch red spruce.

Amount expended, $1,633.78.

During the year 1903-04, a pier of 30 by 30 was sunk alongside the one built the year previous. Amount expended, $4,943.91.

During the fiscal year 1904-05, this pier was completed and the superstructure of the pier built in 1902-03 was raised and completed. The wharf is now 213 feet long, 30 to 40 feet wide, with an outer block 30 feet long by 68 feet and 50 feet high, where there is a depth of 40 feet of water, at low water spring tides. Spring tides rise 5 feet, neaps, 3 feet.

The shed, which was facing the wharf, was removed to the side and repaired.

The sum expended was $1,726.78.

POINTE AUX TREMBLES.

Pointe aux Trembles, County of Portneuf, is a village on the north shore of the St. Lawrence, nineteen miles above Quebec, the nearest railway station is Pont Rouge, on the Canadian Pacific railway, distant three miles.

Population about 1,250. Spring tides rise 17 feet, neaps 10.

The opening of a road leading to the wharf was completed during the first two months of the fiscal year ended June 30 last. This road from public highway to the government wharf, under construction, has a length of 1,015 feet and from 30 to 36 feet wide; it is fenced on both sides, where not adjoining vendor's property, with strong round cedar posts and four strands of No. 9 galvanized wire; length of fencing 1,220 feet. There being a heavy down grade towards the wharf, the hill was cut down and about 1,000 feet of dry stone protection wall, averaging about 280 cubic yards of masonry were hand-laid; the roadbed has been well drained in the lower part of hill, well graded with broken stone and gravel.

In February, 1904, the department acquired, from Athanase Delisle, lot No. 87a, at Pointe aux Trembles, for the purpose of constructing a wharf thereon.

On June 28, 1904, a contract was entered into with Messrs. Dussault & Pageau, for the construction of a wharf, 550 feet long, 20 feet wide on top, except the outer 70 feet which will be 50 feet wide. The whole structure to be of close-faced cribwork, filled with stone ballast. The contract price was $33,775.

During the last fiscal year, work under contract has progressed favourably, but owing to damages by ice, last spring, the wharf will not be completed as soon as expected.

The expenditure during 1904-05, is $9,958.17.

POINTE ST. PIERRE.

Pointe St. Pierre, County of Gaspé, is situated at the western entrance of Gaspé bay, twenty-one miles from Gaspé basin, and fifteen miles from Percé.

In order to afford shelter to fishing boats during the easterly winds, and provide deep water berths along the inner face for large schooners, the department decided to construct a wharf at this place.

In September, 1902, a contract was entered into with Messrs. Heney & Smith to build a wharf 420 feet long.

Three cribs, 100 feet each, have been built in position, the fourth crib, 77 feet long, is being built.

The expenditure during the fiscal year, 1904-05, amounted to $380.

POINTE VALOIS.

Pointe à Valois, County of Vaudreuil, is situated on the south shore of the Lake of Two Mountains, four and one-half miles west of the village of Vaudreuil and two- and a half miles east of Como.

In 1889-90, the old pier at this place measuring about 80 feet by 16 feet, with head block of 45 feet by 20 feet and right of way thereto were purchased from Charles Valois, for the sum of $890.

During the fiscal years 1890-91-92, the original pier was extended by adding, at the outer end, a block of ballasted cribwork, 135 feet long by 21 feet wide, with a return to the eastward 55 feet by 25 feet; the total length of the work from the shore being thus increased to 235 feet. The depth of water available at the outer end of the wharf is now 6¼ feet at low water.

During the fiscal year 1896-97, a sum of $210.72 was applied in effecting general repairs on this wharf.

In 1899, general repairs were made for a sum of $104.97.

During fiscal year 1900-01, more extensive repairs were made consisting chiefly:

In the prolongation of the stone embankment for a distance of 90 feet; in the renewal of a number of stringers, of all the flooring, of part of the front sheathing and of the guard-railing, the whole at a cost of $805.60.

During the spring of 1905, the head block and stone approach were slightly damaged by ice; they were immediately repaired at a cost of $204.78.

The wharf was transferred to the Department of Marine and Fisheries in October, 1897.

PORT DANIEL.

Port Daniel, Bonaventure county, is situated on the Baie des Chaleurs, forty-five miles south of Percé, and about seventy-five miles north of Campbellton. It is an important settlement of some 600 inhabitants mostly engaged in the fishing industry. It contains five churches, saw, grist and shingle mills, one fish cannery and two telegraph offices.

Spring tides rise 6 feet; neaps, 3 feet.

During the session of 1886, parliament granted an appropriation for the construction of a landing pier, at this place. The work was executed under contract and completed in 1889, at a cost of $20,487.58.

The pier was then 350 feet long, 20 feet wide for the first 200 feet, 30 feet wide for the next 100 feet, with a block, 50 feet square and 26 feet high, forming the outer end, where a depth of 13 feet, L.W.O.S.T., could be found.

On November 15, 1889, a contract was entered into for the construction of an extension 75 feet long, 50 feet wide and 27 feet high; this work was completed in October, 1890, at a cost of $12,586.44.

The pier had then a total length of 425 feet, built throughout of close-face cribwork.

In 1895, the extension, which had settled, was raised and repaired.

In 1897, the main body of the pier having also settled was raised and repaired.

Repairs were also made in 1898, 1899 and 1903.

During the fiscal year ended June 30, 1904, the sum of $2,900 was expended in repairs and improvements; the work consisted in placing 200 feet of sheet-piling and refilling the pier, with ballast, where necessary. The hill, in the road leading to the pier, was also lowered.

On May 30, 1904, a contract was entered into for the construction of an extension 100 feet long, 50 feet wide, built of square timber close-faced cribwork, filled with stone and covered with 5-inch flooring.

Contract price, $21,890.

During the last fiscal year, the substructure was sunk in place and built up to about 5 feet above low water level.

Stones and boulders, in the vicinity of the wharf, were also removed by day labour, at a cost of $349.

Total expenditure during fiscal year 1904-05, $11,013.88.

PORTNEUF.

Portneuf is a village in the County of Saguenay, situated on the north shore of River St. Lawrence, about fifty miles below Tadousac.

There is an important saw-mill there, also three stores, one Roman Catholic church, telegraph and post offices.

During the session of parliament of 1904, the sum of $1,000 was voted for the construction of a wharf in the Bay of Portneuf.

Work was commenced and a pier, 40 feet by 20 feet was sunk in 7 feet of water.

The wharf, when completed, will be 140 feet in length, built of two piers and abutments.

The outer pier will be in the form of an 'L' 40 feet in length by 20 feet and 40 feet in width; the centre pier 20 by 20, the abutment 30 by 20, with spaces of 25 feet between the abutment and each pier.

Spring tides rise 12 feet; neaps, 9 feet.

The expenditure during the fiscal year 1904-05, was $1,000.

QUEBEC HARBOUR.

In order to afford more accommodation for large ocean steamers, to land immigrants and general freight, in the harbour of Quebec, the department decided, in 1902, to build an extension in a northerly direction to the breakwater, built many years ago, on the river front of the harbour.

On May 8, 1903, after calling for tenders a contract was awarded to Messrs. Dussault and Lemieux, of Lévis, for the construction of 462 feet of the work, and on June 11, 1904, another contract was signed for an additional length of 500 feet of the extension and of the same class of work as specified in the first contract, the prices in each case being $198,700 and $239,942.87; construction was commenced in May, 1903.

From the bottom up to 3 feet above low water spring tides, the extension consists of timber cribwork, 46 feet wide at base and 21 feet wide at top, filled with stone ballast, the cribs are founded on a bed of rubble stone 4 feet in thickness, deposited on the sand bottom, previously dredged to a depth of 46 feet at low water spring tides, leaving an available depth of 42 feet at the outer face of the cribs. From 3 feet above low water, for a height of 21 feet, the superstructure is built of concrete, and stands 6 feet above high water spring tides.

The back of the cribs and concrete superstructure will be filled with dredged materials, forming an embankment, which will increase the available top area by 290,000 superficial feet.

At the end of the fiscal year 1903-04, three cribs forming the length of 462 feet had been built, ready to be sunk, the dredging for the foundation had been completed on the whole length of 962 feet, the rubble stone bed for the cribs was built for a length of 300 feet, and 45,000 cubic yards of filling deposited; the amount paid on work done at the end of that year was $87,238.

During the fiscal year 1904-05, four cribs, forming a length of 645 feet, were sunk in place, the concrete superstructure was built, to the required height, on a length of 462 feet, and 80,000 cubic yards of material deposited as back filling. The amount expended during the fiscal year 1904-05 was $149,990.67, and the total amount expended was $237,228.67.

The two last cribs, completing the total length of 962 feet of extension under contract, have since been sunk in place.

REPENTIGNY.

Repentigny is a post village in L'Assomption county, on the St. Lawrence, two miles from St. Paul l'Ermite, on the Great Northern, and seventeen miles north-east of Montreal. It contains two stores, one hotel and one church. Population, 600.

On August 10, 1904, a contract was entered into with Lachance Brothers, of Ottawa, for the construction of a wharf opposite the Juneau property, about four-fifth of a mile from the village, at a price of $10,975. It called for the building : 1. Of a close-faced crib head block 73 feet 6 inches long by 40 feet wide and standing 19 feet high in 7 feet 3 inches of water; 2. Of a close-faced crib approach adjoining head block of a length of 230 feet and a width of 16 feet; 3. Of a stone approach 435 feet long and 18 feet wide at top with slopes of 1 in 1 on both sides; the whole forming a length of 705 feet.

In order to place the proposed wharf as near as possible to the centre of the village, a change of site was decided on and that opposite Telesphore Thouin's property chosen, thereby lengthening the stone approach from 435 to 748 feet and the whole structure from 705 to 1,018 feet without modifying in any way its other dimensions. A further arrangement was made in December with the contractors, whereby they agreed to the change at an extra cost of $5,039, above original contract price.

A right of way, 820 feet long and 50 feet wide, was bought from Mr. Thouin at a cost of $100.

Work was begun early in January and suspended on account of high water at the end of March. The stone approach was then two-third completed and the cribwork approach built to a mean height of 6 feet and fully ballasted. Expenditure during 1904-05, was $6,498.95.

RIMOUSKI.

The town of Rimouski, in the county of the same name, is situated on the south shore of the River St. Lawrence, 180 miles below Quebec; its population is about 2,000. It is an important station of the Intercolonial railway, and the place where the royal mails are transferred from steamers to the railway.

Spring tides rise 18 feet, neap 9½ feet.

Owing to the worm-eaten condition of the east side of the wharf also to widen the structure, which has a railway track thereon and was only 20 feet wide, it was decided to construct additional cribwork, along the east side of the wharf, on a length of 900 feet, 20 feet wide at the bottom, 18 feet wide at the top, built to the height of the present wharf.

The works were commenced on May 1, 1904, and up to June 30 of the same year, five cribs, forming a length of 526 feet were sunk and the slip, on the west side of the wharf, was rebuilt on a length of 150 feet and a height of 8 feet. A large quantity of materials was bought for the continuation of the work. The expenditure for that year was $27,236.75.

The works were resumed on July 1 of the fiscal year ended June 30, 1905. Four additional cribs were sunk, giving a total length, with the former ones, of 900 feet, the whole length was then built up to the level of the old wharf. The face-timbers of those cribs are round logs, 27 feet long; their upper and lower faces are notched every 8 feet to a thickness of 10 inches with parallel faces to receive the flatted ends of the cross-ties.

The cross-ties are round timbers of sufficient length to reach from side to side of the work, and laid 8 feet apart. Spruce is used throughout the work, except a depth of 4 feet on the superstructure, which is of cedar.

On the seaward face of the new cribwork was placed an elm sheet piling, 6 inches thick, driven into the bottom a mean depth of 8 feet.

Besides the new work, the flooring, stringers and a row of cross-ties and longitudinals were renewed on a length of 900 feet on the old wharf, near the new work : the face of the slip on the west side of the wharf, 205 feet long, was also sheathed with hardwood 6 inches thick.

In order to afford a suitable foundation for the construction of a train guard, near the outer end, the superstructure on a length of 175 feet, a width of 26 feet and a depth of 10 feet had to be renewed.

Lastly, the flooring and stringers, on a length of 100 feet and a width of 30 feet on the east wing of the outer end, was raised and renewed.

A good quantity of materials is still available for further works.

These works were performed by day labour and the expenditure for the fiscal year 1904-05, is $26,576.49.

RIVIÈRE À LA PIPE (R ST. HENRI DE TAILLON.

Rivière à la Pipe is a small village situated on the north shore of Lake St. John, at the mouth of the river of the same name, seven miles north of Grande Décharge; it contains a Roman Catholic church, two saw-mills, a post office, two factories and several stores.

The wharf is situated at a point on lot No. 118, Township Taillon, about one mile to the westward of Rivière à la Pipe. It is built in a southerly direction, about 75 feet from shore, for a length of 200 feet and a width of 25 feet, and extends to 8 feet water at the mean summer level of Lake St. John.

It is built of close-faced cribwork up to 18 feet, during the year 1897-98, and will stand 25 feet high when completed.

The Quebec government has built a good road from the public road to the present wharf, a distance of two miles.

During the year 1899, an addition of 50 feet long by 30 feet wide was built, at the outer end of the wharf, to facilitate the approach.

During the year 1899 the outer block was raised 5 feet, sheathed for a length 120 feet and replanked; 25 toises of stone were also placed in the work, at a total cost of $999.68.

During the fiscal year 1904-05, a certain quantity of timber was bought in view of the extension of the wharf.

The outside pier was unloaded in view of removing that pier, which is 40 x 25 feet, to form the outer end of the proposed extension.

The total expenditure during the last fiscal year was $961.80.

RIVIÈRE AU RENARD.

Rivière au Renard is one of the most ancient settlements in the county of Gaspé.

It is the first important fishing station and business place met with, proceeding from Gaspé basin, along the south shore up the St. Lawrence.

The population is estimated at 1,700.

A small pier was constructed in 1895-96. In 1899-1900, the sum of $2,870.51 was expended for materials towards the construction of a landing pier and breakwater.

During the fiscal year 1900-01, the sum of $2,013.36 was expended in purchasing additional timber. Work has started in May, and on June 30, 190 feet of close-face cribwork, 5½ feet high 28 feet wide at bottom and fully ballasted was in place.

On June 2, 1903, a contract was entered into for the construction of an additional length of 600 feet.

During the last fiscal year, 480 feet of the 600 contracted for were built.

The expenditure during 1904-05, amounted to $19,990.15.

RIVIÈRE DES VASES.

Rivière des Vases is in the County of Temiscouata, 125 miles below Quebec and six miles west of Ile Verte.

The sea grass industry, which is the chief trade of the place, having become increased, and to provide better landing accommodation for the people living on the island opposite, the construction of an open cribwork pier was begun, along the eastern bank of the river.

From the year 1900 to June 30, 1903, a length of 167 feet 30 feet wide and 8 feet high, along the outer face, was built at a cost of $1,506.66.

During the fiscal year ended June 30, 1905, a further addition 50 feet long, of same height and width, was constructed at an expenditure of $790.18.

The work is built of open-faced cribwork filled with stone.

RIVIÈRE DU LOUP.

Rivière du Loup, or the town of Fraserville, is the chef-lieu of the County of Témiscouata. It is situated on the south shore of the St. Lawrence, 114 miles below Quebec. It is a thriving little town of nearly 4,000 inhabitants, which contains several manufacturies, including the pulp mills.

The Rivière du Loup point, where the wharf is located, is distant two miles from the town. It is one of the best known and most frequented summer resorts of the St. Lawrence.

Spring tides rise 19 feet; neap tides, 12 feet.

Owing to the action of the ice and waves, also the considerable wear and tear due to a heavy lumber traffic, annual repairs are required to the wharf.

During the fiscal year ended June 30, 1905, the following works were performed : The outer face being much exposed to the pressure of the ice, the sheathing and face timbers were badly broken near the low water mark; two holes in the face timbers, each about 30 by 8 feet through which the ballast went out, were closed and covered with an elm sheathing 6 inches thick. The worst portions of the old sheathing, were renewed upon a surface of 1,800 square feet with 6-inch thick elm ; the covering of the north-east corner was repaired with elm 8 inches thick. A surface of 10,400 square feet on the west face, was sheathed with spruce 5 inches in thickness, the face timber being much worn by the ice and by the scows carrying timber to load steamers.

Some 800 spruce deals, 1-inch thick, were used to repair the top planking, and two ladders, 26 feet long, of elm 6 x 9 inches, were placed where needed. Lastly, the stairway on the west side of the wharf, was thoroughly repaired.

About 10,000 lineal feet of spruce, paid for, are available for further works.

The work was done by day labour, at a cost of $13,395.42.

RIVIÈRE OUELLE.

The Rivière Ouelle wharf is situated at Pointe aux Orignaux, five miles from the village of Rivière Ouelle, in the County of Kamouraska, on the south shore of the St. Lawrence, opposite Murray Bay on the north shore.

A branch of the Intercolonial railway, built from Rivière Ouelle station to the outer end of the wharf, runs trains connecting with the steamer which crosses the St. Lawrence several times a day during the summer season, calling at Murray Bay and other places on the north shore; in winter time, with few exceptions, this steamer makes daily trips between Rivière Ouelle and Murray Bay, carrying mails and passengers.

Spring tides rise 20 feet; neaps, 12 feet.

In the course of the fiscal year ended June 30, 1905, the outer face of the 'T' head of the wharf, which is 238 feet in length, was sheathed with elm 6 and 8 inches in thickness. The two outside corner angles were covered with iron plates 13-16-inch thick, and the sheathing of the side faces, of the main body of the wharf, was also repaired.

Temporary repairs were made to the slip on the east side of the wharf, so as to prevent the work from further damage during winter; the stairway, on the west side, was also repaired.

The work was done by day labour at a cost of $2,981.68.

RIVIÈRE VERTE (GREEN RIVER).

Rivière Verte which flows through the parish of Ile Verte empties into the St. Lawrence about half a mile west of the church.

During the spring freshets, this river is liable to cause considerable damage by flooding the mills, scouring and disintegrating the riparian properties.

The protection works begun last year were continued during the fiscal year ended June 30, 1905 ; a second cribwork dike was commenced and a length of 275 feet constructed ; the dike has a width of 20 and 10 feet at top and base respectively, and a mean height of 10 feet. The back is plumb and the front side or apron is inclined 1 in 1.

A large quantity of timber, paid for, was left on the site of the work

The dike was thoroughly filled with stone.

The object of this dike, when completed, will be to divert the current from the side to the middle channel, when this latter will have been widened and deepened.

The expenditure during the fiscal year has been $5,499.61.

RIVER NICOLET.

River Nicolet rises in Lake Nicolet, Wolfe county, and falls into Lake St. Peter, 3 miles below Nicolet, in Nicolet county. It is a rapid stream, but navigable to some distance above the village.

In order to protect the schooners loading in the harbour against storms on Lake St. Peter, a jetty was commenced in 1881, and added to every successive year. It was originally 3,500 feet long, made of two rows of close piles 13 feet distant, and filled with stone. It stood 4 feet above low water with an average height of 5½ feet.

In 1891, some piling was done making the jetty 3,762 feet long.

Dredging in the river and repairs to the jetty were done yearly as follows :—

Year 1852 to June 30, 1900, construction, repairs and dredging	$148,780	54
Year 1900-01 dredging and repairs	7,489	19
" 1901-02 " "	4,795	88
" 1902-03 dredging	3,999	27
" 1903-04 "	11,723	81
" 1904-05 construction, repairs, dredging	10,320	53
Total to June 30, 1905	$187,109	22

Out of the expenditure of 1904-05, a small wharf was built, during February and March along the river, about 1½ mile from Nicolet and opposite the old Ball mills. It was made of a close faced stone filled crib block, 80 feet long including icebreaker, inclined 1½ in 1 and 31 feet wide. It will be of great utility to the Nicolet trade, as this point is the nearest to the village and boats of 6 feet draught can reach there safely. A right of way to the wharf, 250 feet long and 80 feet wide, was purchased from Mr. C. Proulx, at a cost of $400. Total expenditure during fiscal year 1904-05, $10,320.53.

RIVER ST. LOUIS IMPROVEMENTS.

St. Louis de Gonzague is a post village in Beauharnois county, on the Grand Trunk Railway, ten miles from Beauharnois and thirty-five miles south-west of Montreal. It contains one church, one convent, one grist-mill, two hotels and four stores. Population, 1,200.

During the spring freshets, the River St. Louis spreads over the farming lands, from the canal feeder to the village of St. Louis de Gonzague, a distance of about seven miles, and thus causes considerable damage. During the summer, the river

often overflows equally after a heavy rain-storm, and extensive fields of promising crops have been entirely lost.

Surveys of the river were made in November, 1903 and October, 1904. It was found that from the village of St. Louis de Gonzague to a distance of two and one-half miles upstream, several little rapids give a total fall of 6 feet. Above the canal feeder, the fall is about 1 foot per mile.

By proper deepening of the river bed and straightening of certain curves, the water could be lowered some 4 feet which would be amply sufficient to protect the farmers along the banks.

To this effect, a small dredge was built during the winter of 1903-04, and placed in operation in October, 1904. At the end of June, 1905, a cut had been made through the point known as Simmon's. A 28-foot long and 12-foot wide steel span, composed of four 15-inch 42-lb. I-beams with 8-inch channel connections, had been erected in order not to interfere with the roadway; and the necessary dynamiting and dredging done through hard pan and large boulders up to half way through the lower rapid, about 1,000 feet from Simmon's mill.

The total expenditure, 1904-05, including dredge operating staff, but exclusive of cost of dredge, was $5,719.19.

RIVER ST. LOUIS FEEDERS.

During October, November and December, 1904, an extensive survey was made for the localization of a drainage canal proposed to be dredged from River Laguerre, near St. Anicet, through St. Barbe parish, both in the County of Huntingdon, to River St. Louis, near St. Stanislas, in the County of Beauharnois, some seven miles south of Valleyfield.

In order to give more water to the Beauharnois canal, the government, about 1865, built two dams in Lake St. Francis, one from the shore to La Grande Ile, the other from the far side of La Grande Ile to Ile aux Chats, at the head of the rapids. This had the effect of raising the lake some 4 feet, thereby causing, along the shores, heavy damages which have since been paid by the government, but also forcing back in the spring the flow of River Laguerre, which now spreads over the surrounding low lands and renders some 20,000 acres absolutely valueless.

The object of the proposed canal is to divert this overflow to River St. Louis, some ten miles north. No action, outside of the above, was taken during present fiscal year. Expenditure for survey 1904-05, was $548.29.

A preliminary survey had been made in 1901-02.

RUISSEAU LEBLANC.

Ruisseau LeBlanc is a small village on the northern coast of Baie des Chaleurs, in the County of Bonaventure; the village is built near the mouth of the river, also called Ruisseau LeBlanc.

In order to protect the entrance to the river and afford shelter to fishing boats, it was decided to build a breakwater wharf, on the west side of the mouth of the river. On March 20, 1902, a contract was entered into for the construction of such breakwater. Work was completed in November of the same year, at a cost of $21,-077.29.

The structure is 500 feet long and 20 feet wide, substantially built of close-face cribwork, filled with stone.

The outer end stands in 7 feet at L.W.S.T., the top is 7½ feet above H.W.S.T.

Spring tides rise 8 feet.

During the fiscal year 1904-05, the sum of $300 was expended in repairs.

SAULT MONTMORENCY.

Sault Montmorency is situated eight miles below Quebec.

During the last fiscal year a cribwork revetment wall was built to protect the public road from the erosion caused by the heavy seas at spring tide.

This crib has a height of 8 feet by a depth of 10 feet, and covers a length of 600 feet. To complete this work 600 feet more of cribwork will be required, and should be built during next year.

The expenditure for the fiscal year 1904-05, amounts to $6,508.82.

SHIGAWAKE.

Shigawake, a post village in Bonaventure county, is situated on the Baie des Chaleurs, some eight miles north of Paspébiac. It contains two churches, one hotel, one telegraph office, saw and grist mills and six stores. Population about 500.

In 1903, the department decided to construct a wharf at this place and parliament granted an appropriation for that purpose.

On November 21, 1903, Mr. François Skene made a free grant to the Crown of the land required, some 5,000 square feet.

During the fiscal year 1903-04, the sum of $2,818.02 was expended in procuring materials required for the construction of the wharf, which is to be built by day labour.

During the last fiscal year 1904-05, the work of construction was commenced.

The amount expended during the year, is $1,781.46.

SOREL.

Sorel, an incorporated city, is situated on the Richelieu river at its mouth in Lake St. Pierre. It is distant forty-five miles from Montreal by rail. Population about 7,000.

In June, 1901, a contract was entered into with Messrs. McAuliff, Poupore, Malone and Weddell, for the construction of a deep water wharf at this place. The contract price was $255,632.43.

Work was commenced at once and in 1901-02, the expenditure amounted to $94,612.37; in 1902-03, to $132,661.81; in 1903-04, to $44,224.75.

During the summer of 1904, the earth filling was levelled off, and a broken stone revetment was laid over almost the entire surface; the planking, along the edge of the wharf, was also laid as well as the cast iron mooring posts, along the Richelieu side of the wharf.

In the months of November and December, additional stone riprap was deposited, at the north-east inner angle of the wharf, as protection against waves in high gales. The quantity was 450 cubic yards.

In April, 1905, the 6,000 square yards of stone surfacing, required to complete the work, were laid and rolled, some earth filling was also deposited in the triangular space at the end of new wharf, adjoining the Richelieu Company wharf.

The above made the work complete according to specifications.

In April and May, 1905, a survey of the shore line of the St. Lawrence, along the town of Sorel, was made and a plan and estimate prepared, in view of further work to provide approaches to the new wharf.

Total expenditure during last fiscal year amounted to $435.30.

SOREL, ICE PIERS.

Sorel is an incorporated city, the capital of Richelieu county, situated on the right bank of the River Richelieu, at its mouth in Lake St. Peter, some forty-five miles north-east of Montreal. It contains waterworks, court of justice, prison, two

markets, manufactories of engines, mill machinery, stoves, ploughs, leather, bricks, &c., several saw and grist mills, one printing office issuing semi-weekly newspapers, two branch banks, several hotels, two churches, telegraph and express offices and a number of stores. Shipbuilding, for which there are excellent facilities, is largely engaged in. Population, 7,057.

The River Richelieu is about eighty miles in length, and flows from Lake Champlain in a northerly direction through the counties of St. John and Iberville, Chambly, St. Hyacinthe and Richelieu, joining the St. Lawrence at Sorel at the head of Lake St. Peter.

With a view of protecting the properties on both sides of the river near its oulet at Sorel, and the boats which winter here against disastrous ice shoves from the St. Lawrence and the run of ice in the Richelieu during spring, five ice breaking piers were built in the bed of this stream between 1888 and 1892, two of which are on the west side of the last-named river near its confluence with the St. Lawrence.

All these piers have proved of good service, preventing the destruction of much valuable property.

The two piers at the mouth of the Richelieu measure 30 feet by 24 feet and are some 20 feet high; the top being about level with extreme high water on the St. Lawrence. They are well calculated to resist a great pressure from the St. Lawrence but were, at the time of their construction, insufficiently protected from the run of the Richelieu ice, and for this reason were considerably damaged chiefly in the spring of 1896.

During the fiscal year 1896-97, a sum of $441.53 was applied in making good the damage done and strengthening the works by means of sheathing, bracing, corner plates, &c.

During 1898-99 the three ice-breakers above the South Shore Railway bridge were repaired. The top courses of timber, which were found damaged, were removed and renewed and the sheathing repaired. Cost, $555.93.

Since, large sums were expended in construction and general repairs :

In 1900-01	$ 8,111 66
1901-02	1,990 83
1903-04	2,280 59

From October, 1904 to the end of March, 1905, the two ice-breakers near St. Joseph de Sorel, were razed to low water and rebuilt up to 15 feet above E.L.W.L., and entirely filled with stone at a cost of $6,016.89.

STE. ADELAIDE DE PABOS.

Ste. Adelaide de Pabos, commonly called Little Pabos, is an important parish in the County of Gaspé.

In 1888, in order to afford shelter to the fishing boats of the locality, a breakwater was built 200 feet long, 24 feet wide at bottom and the top of the seaward face sloping 1 in 1 on a height of 6 feet, leaving the top of the breakwater 18 feet wide.

In order to prevent the heavy seas from rolling over the breakwater the top was remodelled during the fiscal year 1902-03.

The work consisted in removing the sloping-face on the seaward side, and building instead a perpendicular wall 12 feet wide, from the level of the foot of the old slope on the total length of 200 feet and 9 feet high, or 3 feet higher than the original top; the top of the new work was planked over with 6-inch spruce deals.

During the latter part of the fiscal year the material was bought to build an additional crib of 100 feet, and during the month of June the crib was built 7 feet high and placed in position.

The expenditure during the fiscal year of 1904-05, was $1,326.78.

ST. ALEXIS DE GRANDE BAIE.

St. Alexis de Grande Baie is on the south shore of Ha. Ha Bay, on River Saguenay, about sixty-three miles from its mouth. In order to accommodate the increasing traffic of the locality and provide landing facilities for steamers plying on the river Saguenay, the sum of $4,000 was appropriated, at the session of parliament of 1898, for the construction of an isolated block. The pier is 1[illegible] feet long, 25 feet wide and 27 feet high, the outer end is at a distance of 1,446 feet from high water mark spring tides.

1899-1900, two blocks, one 80 feet long and the other 68 feet, were built from the shore with the view of connecting the outer block, those blocks are 25 feet wide and 20 feet high at the outer end.

Expenditure, $3,999.

In 1900-01, an addition 250 feet long and 25 feet wide was built at a cost of $4,016.63.

During the year 1901-02, three cribs, 25 feet long, 25 feet wide, filled with stone, were constructed at 25 feet south of the work commenced in 1898, those cribs are at a distance of 25 feet apart and are 21, 22, 23 feet respectively in height.

Expenditure, $4,000.01.

During the year 1902-03, an extension was built to the shore wharf 150 feet long, 25 feet wide and 21 feet high at the outer end. The work is open-faced cribwork, built of 11 by 11-inch square-faced timber, with fenders at every 10 feet. The flooring is of 3-inch red spruce. The whole is filled with stone.

Expenditure, $3,994 71.

During the year 1903-04, five piers placed 25 feet apart were built; the first one next to the old work is 20 x 35 feet with a landing slip: the four others are 20 x 25 feet. Part of the extension built the year previous was completed with stringers and flooring.

The span and the top of the first pier were also completed, the stringers are 10 x 12 inches; the four other piers are ready to receive the corbels and stringers. The piers are filled with stone.

Expenditure, $4,082.35.

On January 4, 1905, a contract was entered into for the completion of the wharf. Work was commenced and eleven piers were sunk, nine of 20 x 25 feet and two of 25 x 30 feet, the work is still progressing.

Spring tides rise 17 feet, neaps 9 feet.

The expenditure during 1904-05, is $5,627.23.

ST. ALPHONSE DE BAGOTVILLE.

St. Alphonse de Bagotville is situated at the head of Ha Ha bay, on the southern side of the River Saguenay, sixty-six miles from its mouth.

A landing pier was built prior to confederation by the parochial authorities, at a cost of about $3,200.

In 1876, an arm was built by the department on south side of this pier, 55 feet long by 26 feet wide, at a cost of $3,084.34.

In 1881, the pier was strengthened and repaired, at a cost of $3,897.20.

During the year 1881-82, three hundred and seventy-eight feet of the original pier, which had been burnt down to low water level at the shore, was rebuilt for an average height of 10 feet, a large portion of the flooring was renewed, and other repairs made at a cost of $2,204.59.

In 1882-83, a block of cribwork was sunk close to the pier and filled with stone.

Expenditure, $4,307.40.

During the year of 1883-84, the block was completed at the cost of $3,586.03.

In 1884-85, the work executed consisted in raising the wharf two and three feet over its length; constructing a movable slip and erecting an open shed, 80 x 66, on the outer end of the wharf.

Expenditure, $4,680.55.

In 1887-88, the flooring of the wharf was repaired at a cost of $216.98.

In 1889-90, the flooring of the wharf was renewed for 300 feet and a slip was built.

Expenditure, $1,025.54.

In 1889-90, the flooring of the end of the wharf was renewed and other repairs made at a cost of $809.27.

During the year 1890-91, the planking of the wharf was renewed over the western 200 feet and a quantity of stone ballast put in.

Expenditure, $1,000.

In 1893-94, the work executed consisted in sheathing a length of 360 feet with 6-inch red spruce.

Expenditure, $1,200.

During the year 1896-97, a shed 30 by 45 feet was built on the eastern side of the pier, the face timber on the slip was renewed.

Expenditure, $497.78.

In 1898-99, the planking and stringers were completed on a length of 275 feet, and the north-east side of the pier was sheathed with 5-inch tamarack, over a length of 275 feet.

Expenditure, $3,000.57.

In 1899-1900, the north and south sides of the pier, for a distance of 250 feet were sheathed with 5-inch tamarck, and the planking was renewed over the same length at a cost of $548.

In 1902-03, general repairs were made to the flooring, the shed, and new fenders were put on. The shed was recovered with sheet iron.

Expenditure, $1,500.

During the year 1903-04, a pier was built, 30 x 30 feet, on the west side of the wharf, with a slip. This pier is built of open-face timber, sheated with 3-inch planks, and with fenders of 8 x 10 inches every 8 feet. It is ballasted and complete.

The covering of the shed in sheet iron was completed; a new waiting room, freight and cheese cold storage were made under the covered shed, the repairs to flooring were commenced and the shed was painted.

Amount expended, $2,449.21.

During the fiscal year 1904-05, the work done consisted in general repairs, stringers, planking, sheathing and fenders.

Amount expended, $1,912.42.

The wharf is 436 feet in length, 25 and 54 feet in width with an outer block of 40 feet by 85 feet. The depth of water at the outer end, is 18 feet.

Spring tides rise 17 feet; neaps, 9 feet.

ST. ANDRÉ.

The village of St. André, in the County of Kamouraska, is situated on the south shore of the St. Lawrence, about fifteen miles west of Rivière du Loup and 100 miles below Quebec.

The place is somewhat frequented as a summer resort; it contains a foundry and an important machine factory.

Spring tides rise 19 feet; neaps, 12 feet.

The wharf owned by this department at St. André consists of an eastern embankment 850 feet long and 6 feet high, and nine piers connected by spans of 30 feet.

In the month of June, 1904, an addition to the wharf, 80 feet long, 86 feet wide and 18 feet high, was commenced.

During the fiscal year ended June 30, 1905, the work which was close-faced, filled with stone, was completed. The earthen approach to the wharf was repaired upon a length of 200 feet thus completing the repairs to the whole embankment.

Two openings, 25 feet wide, between the outer piers of the wharf and which were most troublesome to, laying alongside, the wharf, have been closed.

The expenditure during the year 1904-05, amounted to $2,460.46.

STE. ANNE DE LA PERADE.

Ste Anne de la Perade is a post village in Champlain county, on the C.P.R.. 6 miles from Batiscan and 53 miles above Quebec. The River Ste. Annes, one of the tributaries of the St. Lawrence, divides the village.

A landslide in 1894, caused a complete change of some of the physical features of the Ste. Annes river. It is now a rapid stream carrying from the valley, where the crumbling took place, at St. Alban in Portneuf county, quantities of sand and of fine clay in suspension. The deposit of this material takes place near the mouth of the river, where the current slackens, thereby filling its natural bed, opposite the town, with quicksand shoals. During freshets these sand banks turn the current against the shores.

Just above the town, the west bank is high and unstable. Protection works, consisting of five dams constructed of double rows of open piling 10 feet apart and filled with alternate tiers of brush and stone, were constructed with a view of deflecting the current from the bank. This was only partly successful; the space behind the wings did not fill up permanently, the ballast and brush settled in the sand or was washed away, and some of the piling resting entirely in the quicksand, failed. The dykes were : No. 1, 140 feet ; No. 2, 340 feet ; No. 3, 435 feet long ; that in the little channel, on the west side of the river, 550 feet and the 5th near the C.P.R. bridge, 340 feet long.

A sum of $14,906.05, out of which $5,000 had been subscribed by the municipality. was thus expended.

During the fall of 1895, some trees, stumps, &c., which had accumulated in the little channel, were removed.

During the winter of 1896, dyke No. 1 was reconstructed for a length of 220 feet and No. 5 repaired. Long alders were used instead of balsam branches. Between each course of brush and ballast, round logs were inserted to hold the stone in place and to make the work more continuous. Where the pile work was gone and to renew connection with the shore, rough cribs or mattresses were made of long branches and logs heavily coursed with stone. Expenditure incurred was $3,003.83.

During November, December and January, 1900-01, some repairs were made to dykes 1 and 4, and a round timber cribwork with an underbed of brush, the whole loaded with stone, was constructed for a length of 400 feet by a width of 10 feet and a height of 8 feet, from the foot of dyke No. 1 to the shore. The object of that work was to protect dykes No. 1 and 4, which menaced to be carried away, or at least seriously damaged by freshets, owing to a washout from the foot of dyke No. 1 to the shore, some 60 feet. Cost, $1,199.21.

During the fiscal year 1901-02, the sum of $2,997.17 was expended : $2,090.23 to pay the balance due on the work carried out during the previous year, and $906.94 to procure stone to riprap a portion of the west side of the west channel, from the C.P.R. bridge to the municipality bridge, to protect that part of the village against probable landslides caused by the increased quantity of water, now passing through that channel.

In 1903, minor repairs cost $48.

During 1903-04, some riprapping was done : a dry stone dyke 10 feet wide at the base, 4 feet at top and 4 feet high being built for a distance of 900 feet. The dyke

that had been erected at the head of St. Ignace channel being found an inconvenience to the shore owners, who take their supply of water there, a culvert 3 feet wide and 5 feet high was made at the bottom of said dyke. A sum of $3,000 was thus expended.

In 1904-05, general repairs were made to all the protection works, and stone placed at the most threatened places. Cost, $1,997.77.

STE. ANNE DE LA POCATIÈRE.

The village of Ste. Anne de la Pocatière, in the County of Kamouraska, is situated on the south shore of the St. Lawrence, seventy-four miles below Quebec.

Spring tides rise 20 feet ; neaps, 12 feet.

The reconstruction of the wharf begun in 1904, was continued and completed during the fiscal year 1904-05. This wharf had been broken and carried away by an ice shove, two years ago; it consisted of 12 piers, connected by spans; the piers were formerly built open faced, with flat timber 9 inches thick, their dimensions were only 20 by 20 feet. This time, the piers were 20 by 30 feet built close faced, with square timber 11 by 12 inches, and thoroughly filled with stone ballast.

Two openings, at the outer end of the wharf, were closed, and the corners of all the piers were sheathed with spruce 6 inches thick. A stairway was built on the east side, near the outer end.

The approach, constructed of stone which had been scattered about by the waves, was rebuilt with cedar filled with stone and earth.

The reconstruction was completed by the end of November, 1904, and the work is more strongly built than formerly.

The work was done by day labour at a cost of $4,582.42.

STE. ANNE DES MONTS.

The Ste. Anne river flows into the St. Lawrence, at the west end of the village of Ste. Anne des Monts, one of the oldest and most important establishment of the Gaspé Peninsula, some one hundred miles below the nearest railway station, Little Metis.

During the last fiscal year, timber was purchased for the construction of works, to improve the entrance to the river.

The expenditure during 1904-05, amounted to $1,820.67.

STE. ANNE DE SOREL.

The village of Ste. Anne de Sorel, in the County of Richelieu, is situated at the head of Lake St. Peter, on the south shore of the St. Lawrence, 2 miles below the town of Sorel.

During the spring freshets of the St. Lawrence, considerable portions of the parish of Ste. Anne, and of the island opposite, are flooded. In order to prevent the ice from being carried by the floods over the low lying lands along the shore, ice piers were built from 1881 to date at or in the vicinity of the village.

Construction.—The two first ice piers were built in 1881-82, in the Chenal du Moine, one of the channels of the St. Lawrence, and about two miles below the village of Ste. Anne. They were 30 feet square and fully answered the purpose for which they were built. Their total cost was $1,957.97. At the end of the year 1882-83, the construction of two additional piers was commenced in the same channel. They were completed during the winter of 1883-84 at a cost of $3,536.38. Another pier was built in 1885 at the head of Chenal du Moine, at a cost of $1,176.53, and repairs amounting to $7.20 effected to the piers built in 1884. A sixth pier was built in 1886 at a cost of $1,321.86, which amount also included the cost of repairs effected to the piers built in 1884. In order to afford further protection, a seventh pier was built in 1887, a short

distance below the one built in 1885. Its cost was $836.66. An eighth pier was built in 1888 on the property of Bruno Peloquin, and one of the piers built in 1884 was raised 3 feet 4 inches, at a cost of $947.67. In 1889 another pier was built at the entrance of Chenal du Moine, about 2½ miles below the village. It was 30 feet long, 24 feet wide and 21½ feet high and cost $2,708.28. In 1890, the necessary materials for the construction of another pier, opposite the church, were procured at a cost of $2,497.11 and in 1891 the structure was carried 5 feet above low water at a cost of $1,696.25. The pier measures 60 feet by 25 feet at the bottom and 56 by 24 feet on the top. It stands in 7 feet of water and has a height of 12 feet. During the year 1897-98, three new piers were built for the protection of properties which were not guarded by the old ones and one of the latter was strengthened and repaired. The new piers measure 24 feet by 20 feet and are from 12 to 14 feet in height. Their total cost amounted to $3,514.68.

During 1898-99, three additional ice piers were constructed, one opposite the town of Sorel, one about 1,500 feet above the wharf of Ste. Anne de Sorel, and the third one, about 1½ miles below the same. These icebreakers were built of the same materials (wood, sound hemlock), and in the same manner and description as those built the preceding year: base 24 feet and 20 feet and of a height varying from 12 to 18 feet, according to the locality and level of the ground. Cost, $3,594.18.

In the beginning of October, 1898, the construction of a landing pier at Ste. Anne de Sorel was commenced. It consisted of a crib 100 feet long, 18 feet at the base and 14 feet wide of flooring, the height varying from 2 feet to 7 feet, to suit the ground. Ten inch square and round hemlock was used in the construction, also 6-inch sheathing on the breakwaters and 3-inch flooring. The entire crib was filled with stone. At the landing about 5 toises of stone were put in place, to render the access to the wharf easy. These works were completed on November 3, at a total cost of $1,596.87.

The amount expended during the year was $5,191.05.

During fiscal year 1899-1900, another pier was constructed at a cost of $1,009.19.

In 1900-01, construction and other repairs cost $2,028.89.

During the fiscal year 1903-04, the ice pier, opposite Sheppard's mill, was repaired and raised 7 feet at a cost of $725.

At Ste. Anne de Sorel, a new pier, 20 by 24 feet, 15 feet high, was built on the property of Damase Lavallée ; also a new one on Ile du Moine, to replace the old pier which was beyond repair. Another pier in this vicinity was repaired at a total cost of $3,793.38. On the west side of the Richelieu river, a new pier was built, 20 by 24 feet and 18 feet high, at a cost of $2,997.92, making a total expenditure, for the fiscal year 1903-04, of $7,834.13.

During the autumn and winter 1904-05, two piers were erected on Ile du Moine and another at Ste. Anne de Sorel, they being 18 feet by 6 feet at top with one face inclined 1½ in 1. The latter one was built 18 feet high and the two former ones 12 feet. Expenditure during the fiscal year 1904-05, $8,881.04.

STE. ANNE DU SAGUENAY.

The parish of Ste. Anne du Saguenay is situated on the north shore of the Saguenay river, seventy-two and one half miles above Tadousac, and opposite the town of Chicoutimi. Besides the church and post office, the parish contains several stores, four cheese factories, a lime-kiln, a brick-yard, a potter-yard and saw-mills.

Spring tides rise 17 feet, neaps 9 feet.

There is an hourly ferry to and from Chicoutimi.

Construction.—As early as 1879, the Dominion government was urged to construct a landing pier for the accommodation of the inhabitants of the district. The request was not, however, considered until 1888, when a portion of the timber, for the proposed structure was purchased at a cost of $2,100.

In 1889, the pier was commenced from shore outwards, and at the close of the year 1888-89, a portion, 70 feet long and 30 feet wide, on its lower eastern face, had been completed at a cost of $2,109.69. It was built of close-faced cribwork, filled with stone ballast.

In 1890, this shore block was extended 87 feet on a width of 27 feet, at a cost of $2,045.50.

In 1891, a further length of 50 feet, of similar cribwork, 27 feet wide, was added at a cost of $2,498.96.

In 1892, a head block, 30 feet long, 60 feet wide and 20 feet high, was built at a distance of 250 feet from the end of the work, completed the previous year. Expenditure, $2,262.11.

In 1896, this block was raised 8½ feet and put on the same level as that of the work built out from shore, viz., 6 feet above ordinary high water spring tide.

With a view of completing the pier to shore, a sum of $5,575.25 was expended in 1897, for the construction of two cribs, each 87½ feet long and 25 feet wide placed 25 feet apart and 25 feet from both the head and shore block.

During the year 1898, the three 25-foot openings left in the work were spanned, the flooring was laid and the structure completed to shore, at a cost of $746.70.

Some boulders were removed in 1894, from the vicinity of the head of the pier, at a cost of $99.30.

During the year 1899, the planking of that part of the pier constructed in 1888, was renewed over a length of 250 feet, the sides of the crib built in 1897 were sheathed on a length of 200 feet and fenders were placed at the angles.

The work was done by day labour, at a cost of $1,099.90. During the year of 1900, the outer block, for 110 feet, was sheathed with tamarack, and about 300 feet of the planking was renewed with 3-inch tamarack, at a total cost of $1,499.99.

During the year of 1901, the sum of $2,507.36 was expended in renewing the planking of the wharf, over a length of 240 feet and a width of 25 feet. The upper part of the wharf was sheathed, over a length of 110 feet with 6-inch tamarack, and a shed 45 feet by 30 feet was also erected on the wharf.

During the year of 1901-02, a crib 40 feet wide and 27 feet high was constructed at the eastern extremity of the wharf; it is fully sheathed with 5-inch tamarack.

The flooring of the wharf was renewed on a space 200 feet long and 27 feet wide.

Expenditure, $3,103.07.

During the year 1902-03 a movable slip was built, a waiting-room was commenced and the flooring of the wharf was renewed at different places.

Expenditure, $1,523.30.

The wharf now stands 475 feet in length, 30 feet in width for the first 130 feet from shore, 27 feet for the next 325 feet and 100 feet for the last 30 feet; it stands 28½ feet high above the bottom of the river, at its outer end, where there is 7½ feet of water, at low water spring tide.

The wharf has a return, on the western side of the shore, 120 feet in length by 32 feet in width, this return is built from the wharf to the rock.

During the year 1903-04, the shed was covered with sheet iron, the waiting room was completed, a freight shed was built and the flooring was repaired.

Amount expended, $957.08.

During the fiscal year 1904-05, a new pier, 20 x 20 feet was constructed on the east side of the wharf, at 22 feet from the head block, close to the wharf; the head block is connected with the pier by stringers, supported on corbels, the span and the block are planked over, the pier is sheathed, provided with fenders and fully ballasted with stone.

The pier on the west side of the head block, built in 1901, was repaired and levelled, new stringers were put on and the planking renewed where necessary.

On the west side of the wharf a big boulder was removed by blasting.

Amount expended during the year, $2,387,87.

ST. BLAISE.

St. Blaise is a post village in St. Johns county, on the Richelieu river, on the Grande Ligne branch of the Grand Trunk railway, four miles from St. Johns. It contains two churches, three stores, and telegraph office.

In May, 1905, in order to accommodate the important hay, butter and cheese traffic of the locality, the construction of a wharf was begun. The work consisted in the dredging of a trench some 1,000 feet long, from main channel shoreward, by a width of 50 feet and to a depth of 6 feet below E.L.W.L. Alongside the above and from the shore, a row, 175 feet long, of close piles with a return of 27 feet at outer end, forms the face of the wharf. These piles were cut 5 feet above low water, with cap on top and double fenders in front, and retained every 5 feet by a second series of piles 12½ feet backward, 1½-inch iron anchor bolts 16 feet long securely connecting the two. It is the intention to use the above dredged material as a filling behind the face piles, and form thus a roadway 20 feet wide with a slope of 1 in 1 on the upstream side which will be riprapped.

At the end of June, 1905, all the piles had been driven in and the filling begun.

Expenditure, $2,610.01 exclusive of land for right of way.

ST. CHARLES BORROMÉE.

St. Charles Borromée is a village situated on the north shore of La Grande Décharge of Lake St. John, in the county of Chicoutimi, at twenty-one miles above Chicoutimi town; it contains one Roman Catholic church, one store, one cheese factory, telegraph and post office. Population about 1,000.

During the fiscal year 1904-05, a certain quantity of timber was bought in view of the construction of two landing piers, for the ferry.

Amount expended, $996.95.

STE. EMELIE.

Sainte Emelie is a village in the County of Lotbinière, the post office name is Leclercville. It is situated on the south shore of the St. Lawrence, fifty miles above Quebec. The village is at the mouth of the Grande Rivière du Chêne, the site of an important lumber mill. The nearest railway station is distant six miles.

During the fiscal year 1900-01, the department constructed a wharf at this place. It consists of an isolated block, 53 feet long, 25 feet wide and 19 feet high, connected to the shore by means of a movable trestle approach.

During the last fiscal year, steel plates ⅜-inch thick, were put on the western slope of the isolated block, covering 392 superficial feet of sheathing.

In the spring of 1905, the trestle approach was put in place, two new posts were put in, the movable freight shed repaired and a movable waiting room built.

Total expenditure for fiscal year is $537.09.

STE. FAMILLE (ILE D'ORLÉANS).

Ste. Famille is situated on the north shore of Ile d'Orleans in the County of Montmorency, about sixteen miles below Quebec.

The extension of the wharf, begun last year, was completed at the end of September, 1904. This extension is 200 feet long by 30 feet wide, and is 21 feet high at the outer end. Part of the flooring of the old wharf was renewed.

The expenditure for the fiscal year 1904-05, amounts to $15,111.88.

STE. FELICIEN.

St. Félicien, a post village in Chicoutimi county, is situated on the Ashuapmouchouan river, fifteen miles from Roberval, the terminus of the Quebec and Lake St. John railway ; it contains one Roman Catholic church, five stores, two hotels, one saw-mill and several cheese factories. Population about 1,200.

During the year 1895-96, a wharf was built to accommodate the local traffic, this wharf is 70 feet in length, 36 feet in width and 32 feet in height at the outer end, at which vessels drawing 8 feet can lay at low water.

A shed 20 feet square was erected on the wharf, at its outer end.

During the year 1899, an addition, 90 feet long, parallel with the channel, and 40 feet wide, was constructed at a right angle to the wharf, at its outer end.

During the year 1900, 30 feet in length and 10 feet in height was damaged by ice, which damage was repaired at the cost of $100.

During the year 1903-04, fifteen boulders obstructing the channel were removed. Amount expended $302.94.

During the year 1903-04, certain repairs were done to the wharf, the sheathing was renewed, the stringers replaced, planking completed and the shed repaired and painted. Amount expended, $640.49.

During the winter 1904-05, a certain quantity of boulders obstructing the channel were removed at a cost of $306.57.

ST. FIDELE.

St. Fidele is situated in the county of Charlevoix, twelve miles below Murray Bay, on the north shore of the St. Lawrence. The population is 1,200.

This place is without railway communication and the trade depends entirely on the navigation. In the village there is one church, six stores and three blacksmith shops.

In order to help the lumber and general trade, a contract was entered into on October 26, 1904, with Messrs. Frs. Tremblay and Ern. Savard, for the construction of a close-face timber cribwork wharf 180 feet by 30 feet for the sum of $15,266.

At the end of June, 1905, one-third of the work was done, and it is expected to be completed by October 1, 1905.

The expenditure for the fiscal year 1904-05 amounts to $3,162.03.

ST. FRANÇOIS (ILE D'ORLÉANS).

St. François, is situated at the lower end of Ile d'Orleans, in the county of Montmorency.

During the last fiscal year a small scow was constructed to communicate from the shore to the isolated pier; a fence was also built around the government property.

The expenditure for the fiscal year 1904-05 amounts to $184.21.

ST. FRANÇOIS DE SALES.

St. François de Sales is a post village in Laval county, on Isle Jesus, half mile from Terrebonne on the other side of River Jesus. Population, 850.

During spring, 1905, materials were bought for the construction of a high and low level wharf at this place, at a cost of $6,947.90.

This wharf will stand downstream and alongside the old Masson pile bridge, between St. François and Terrebonne. It will be 238 feet long, measured from the public road.

1. The high level portion will be formed : (a) Of three concrete piers distanced 40 feet at top and measuring 40 feet 9 inches by 9 feet 8 inches at bottom, 21 by 6 feet

at top (the upstream face used as icebreaker being inclined 1½ in 1 and nosed 90 degrees), 23 feet high from low water and resting on close-faced stone filled cribs, 44 feet by 13 feet, standing in an average of 3 feet of water ; (b) Of a stone and earth approach 100 feet long, inclusive of concrete abutment, inclined in front 1 in 12, also 23 feet high, 3 feet deep at top with 2 one-foot retreats at back augmenting depth to 5 feet at bottom, and 45 degree return wings. All the concrete shall be re-enforced with 1½-inch iron bars and plates, washers and nuts.

2°. The low level portion shall be of the same length and built alongside and down stream of the high level one. It shall be composed of a crib close-faced on down stream side, 10 feet deep and properly filled with stone so as to form a width of 18 feet at top, the upstream side between the concrete piers being riprapped 1 in 1, and standing 6 feet above low level in an average of 3 feet of water.

ST. FULGENCE.

St. Fulgence (otherwise called L'Anse aux Foins) is a small village in Chicoutimi county, on the north shore of the Saguenay river, ten miles below Chicoutimi.

It contains one Roman Catholic church, four stores and two saw-mills.

During the year 1903-04, the construction of a wharf was commenced, it consists of a shore approach, 75 feet in length, 22 feet in width and 10 feet in height, and of a block of cribwork 25 x 22 feet, 14 feet high, placed at a distance of 25 feet from the outer end of the approach.

This work is built of round logs open-faced, and intended to be sheathed ; the whole is fully ballasted.

Expenditure, $998.37.

During the fiscal year 1904-05, the approach, the first pier and other piers of 25 by 22 feet placed at 25 feet apart, were completed. Fenders of 8 by 10 inches put on ; the stringers and the corbels are of 12 x 12-inch timber, the planking is of 3-inch spruce. At the end of the year, 275 feet of the wharf was completed, except the sheathing.

Another pier was commenced and built 14 feet in height.

Spring tides rise 17 feet; neaps, 9 feet.

Expenditure during 1904-05, $4,993.37.

ST. GEDEON ISLANDS.

St. Gédéon Islands, in the parish of St. Gédéon, are situated on the south-east shore of Lake St. John, thirty-nine miles west of Roberval.

The parish contains one Roman Catholic church, several stores, post office, two cheese factories, two saw-mills, telegraph and railway stations. Population about 1,200.

During the year 1903-04, a certain quantity of timber was purchased in view of the construction of a wharf at that place. Amount expended, $1,982.19.

On July 13, 1904, a contract was entered into for the sum of $8,990, for the construction of a wharf in the Bay of St. Gédéon's islands.

The work done consisted in the construction of an abutment 20 feet long; of seven piers 20 by 20 feet built 25 feet apart; of a head block 40 by 30 feet and 26 feet in height at outer end, where two slips have been constructed ; the whole work is completed.

Amount expended, $7,525.62.

The depth of water at outer end is 7 feet.

In spring, water rises 14 feet.

STE. GENEVIEVE.

Ste. Genevieve, is a post village in Jacques Cartier county, on River des Prairies, on the Grand Trunk railway and Canadian Pacific railway, three miles

from Beaconsfield and five miles from Pointe Claire. It contains one church, one convent, two hotels, butter and cheese factories, telegraph office and fifteen stores. There are excellent mineral springs in the vicinity.

In 1890-91, a pier was constructed consisting of four cribs with ice-breakers, 20 feet by 30 feet at low water line and 20 feet square on top, placed 20 feet apart and the roadway covered with 3-inch planks. The approach was 76 feet in length, making the total length of wharf 239 feet. Cost, $9,433.58.

During 1898-99, the sheathing was renewed a total length of 120 feet and 16 feet high with 8-inch tamarack; the four piers were raised for 1 to 3 feet and stringers partly renewed. Cost, $1,036.16, not quite finished.

In July, 1899, the above repairs were completed at a cost of $208.96.

During fiscal year 1901-02, more extensive repairs were made; a number of stringers between cribs and part of the flooring were renewed and the guard railing repaired. Cost $1,106.52.

In March, 1903, the sum of $135.45 was expended in repairs to stringers and flooring.

In 1903-04, the two top tiers of the cribs and abutment were renewed; a 12 x 12-inch post was placed inside the downstream corner of each crib and secured to the face-timber with 1-inch screw bolts and 3-inch washers; the wooden stringers were replaced by three 18-inch I-steel beams with 8-inch channel connections and 6-inch I-steel beams laid across every 3 feet and properly secured to the main beams; a new flooring of 3-inch pine deals was laid diagonally and secured to the 6-inch I-beams; an iron guard-railing was adjusted on both sides. The whole by day labour at a cost of $2,596.71, inclusive of $1,278 for the steel materials furnished and erected by the Phoenix Bridge and Iron Works Company.

During the spring of 1905, the sheathing of slanting-face of each pier was renewed and covered with $\frac{1}{2}$-inch steel plates, at a cost of $2,227.93.

ST. GODEFROY DE NOUVELLE.

St. Godefroy de Nouvelle, in the County of Bonaventure, is a parish situated at the foot of the Baie des Chaleurs, having a population of about 2,500 inhabitants, partly engaged in the fishing industry. There is also a considerable lumber trade done at this place. The railway station on the Atlantic and Lake Superior railway, is known under the name of 'La Nouvelle.'

On May 31, 1904, a contract was entered into for the construction of a breakwater, in the sum of $19,300.

The works under contract consisted of six contiguous cribs commencing at the shore; the shore end crib to be 150 feet long and the five others 100 feet each, giving a total length on top of 650 feet of continuous cribwork superstructure, with an average width of 20 feet. The depth of water at the outer end is 14 feet 3 inches at high water spring tides.

Spring tides rise 7 feet.

This work was built and completed during the last fiscal year, and the approach to the breakwater was also constructed.

The expenditure during 1904-05 amounted to $18,508.46.

ST. IGNACE DE LOYOLA.

St. Ignace de Loyola, in Berthier county, is a small settlement on an island of the same name, in the River St. Lawrence, between Berthier and Sorel, at the entrance of Lake St. Peter. Population on island, 935.

During the spring of 1905, materials consisting of timber and bolts for a wharf at St. Ignace, and stone and cement for two icebreakers on Isle du Pads opposite, were bought at a cost of $1,797.39.

It is the intention to build : 1. Opposite the church and on property given to the Crown by the church wardens, a pile structure 49 feet long, 33 feet wide and standing 16 feet high in 8 feet of water at low level. 2. Two icebreakers at the upper end of Isle du Pads. These will be of stone covered with a coat 1 foot thick of concrete mixed 1, 3, 5 and with 1½-inch iron bars connecting two opposite faces. They will be 12 feet high and measure 6 feet square at top, with two faces inclined 1½-inch in one and the other two 1 in 12, making the ground dimensions 18 feet 10 inches square.

STE. IRENÉE.

This village is situated in the County of Charlevoix, on the north shore of the St. Lawrence, seventy-eight miles below Quebec and some six miles west of Murray Bay.

During the present year a movable slip was constructed. The wharf was also levelled and a few piles were placed at the end to prevent it from sinking. The expenditure for the fiscal year 1904-05, amounts to $907.97.

ST. JEAN (ILE D'ORLÉANS).

St. Jean, in the County of Montmorency, is situated on the south shore of Ile d'Orleans, sixteen miles below Quebec.

During the year 1904-05, the flooring of the wharf was renewed, and about one-third of the wharf was sheathed with hardwood; six mooring posts were put in and the buildings repaired.

The expenditure for the fiscal year 1904-05, amounts to $956.79.

ST. JEAN DES CHAILLONS.

St. Jean des Chaillons, a post village and parish in Lotbinière county, is situated on the River St. Lawrence, fifty-seven miles above Quebec.

Population of village, 1,000.

In September, 1904, a contract was entered into with Mr. Chs. Pagé, for the construction of a landing pier at this place. Contract price, $33,233.75.

Owing to delays experienced in securing deeds of land required, work had not yet been commenced on June 30, 1905.

Expenditure during fiscal year 1904-05, for plans, advertisement for tenders, &c., amounted to $893.20.

ST. JEAN PORT JOLI.

The village of St. Jean Port Poli, in the County of L'Islet, is situated on the south shore of the St. Lawrence, 60 miles below Quebec.

Spring tides rise 21 feet ; neaps, 13 feet.

An addition to the wharf, 50 feet long, 38 feet wide and 30 feet high, was built during the fiscal year ended June 30, 1905; the block is of close-faced cribwork very strongly constructed and thoroughly filled with stone.

The wharf has now a total length of 504 feet, a depth of water of 6½ feet is found at the outer end, at low water spring tides. It consists of a shore part, composed of piers connected by spans, 180 feet long and 18 feet wide; a middle section, 174 feet in length, open cribwork, and a head block of 150 feet long, 38 feet wide and 30 feet high at the outer end.

The amount expended during the last fiscal year, was $5,999.59.

The work was done by day labour, during months of October, May and June.

ST. JEROME.

St. Jérôme is a village situated on the south-east shore of Lake St. John, 24 miles east of Roberval ; besides the church, post office, telegraph and railway station, the parish contains several stores, three cheese factories, and two saw-mills.

The wharf built in the year 1899-1900, consists of an approach, 75 feet in length, 25 feet in width and 15 feet in height, filled with ballast, sand, &c., two blocks, 75 feet in length by 25 in width, placed 25 feet apart and connected by stringers. The whole top of the wharf, 275 feet in length, was covered. Amount expended, $4,999.28.

During the year 1900-01, an addition, 400 feet long, 25 feet wide and 24 feet high was built at a cost of $6,933.90.

In 1901-02, the addition was completed at a cost of $1,999.97.

During the year 1902-03, a block 60 feet long, 25 feet wide and 27 feet high, was sunk in 7 feet of water at low water, 110 feet from the present wharf, to which it is intended to connect it by the construction of two piers and spans. The head block is built with a slip sheathed with 8-inch hardwood, and filled with stone.

Amount expended, $2,595.20.

During the year 1903-04, two piers were built in the space between the outer block and the wharf, the corbels and stringers 10 by 12 feet for the two spans were laid and covered with 3-inch deals.

Amount expended, $2,146.64.

During the year 1904-05, the stringers were laid, the planking completed and the sheathing commenced.

The amount expended, was $727.73.

ST. JOHNS.

St. Johns, the chef lieu of the united counties of St. Johns and Iberville, is situated on the Richelieu river, 27 miles south-east of Montreal. It contains district and county buildings, churches, banks, military school and barracks, 12 hotels and about 100 stores, important manufactures of silks, potteries, &c. The town is lighted by electricity and has a good system of waterworks. The C.P.R., G.T.R., Central Vermont and Delaware and Hudson enter the city which has a large trade in lumber, grain and country produce. Population, 4,030.

In order to give valuable assistance to boats passing through the swing span of the Vermont Central Railway bridge, at St. Johns, a boom was constructed. It has a length of 350 feet by a width of 4 feet, and is moored to clusters of 5 piles each, driven 15 feet into the ground every 50 feet, except the upstream cluster which has ten piles and is protected against the ice by a steel plate, 6 by 6 feet, and ⅜-inch thick. The piles of each cluster are well secured together by screw bolts.

The boom stands in 9 feet of water at extreme low water level, and in 14 feet at extreme high water level. The timber used is 12 by 12-inch hemlock for the booms, and round pine and oak 14 inches at butt end for piles. The work was commenced in November, 1900, and completed in April, 1901, at a cost of $1,504.45.

During the spring, 1904, the head and two intermediate clusters of piles were broken by the ice, and the boom was also much damaged. A close cribwork ice-breaker 20 by 12 feet and 18 feet high was built, in place of the head cluster of piles, to moor the boom ; the two broken clusters of piles were renewed, the boom was repaired and sheathed diagonally with 3-inch pine deals. The work was carried out by day labour at a cost of $1,259.88.

In 1904-05, minor repairs to piles and boom cost $206.64.

ST. LAURENT (ILE D'ORLÉANS).

St. Laurent, in the County of Montmorency, is situated on the south side of Ile d'Orléans 10 miles below Quebec. This place is frequented as a summer resort.

During the year 1904-05, one third of the flooring of the wharf was replaced and three new fenders were put in.

The expenditure for the fiscal year amounts to $891.92.

ST. MICHEL.

St. Michel, in the County of Bellechasse, lies on the south shore of the St. Lawrence, fifteen miles below Quebec.

The site of the village is picturesque and the place is frequented as a summer resort. The coasting steamer 'Champion' calls there twice a day, giving good facilities for traffic in farm produce.

Spring tides rise 21 feet; neaps, 13 feet.

In the course of the fiscal year 1904-05, the outer block of the wharf, which had settled 2½ feet on account of the scouring and washing away by the current and the waves, of the ground around and under the block, was thoroughly repaired and levelled. By means of a pile driver, sheet piles of pitch pine, 10 by 10 inches, varying in lengths from 30 to 38 feet were driven along the west, north and east faces, a mean depth of 8 feet through the bottom and secured to the face timbers with iron screw bolts, one inch in diameter.

Previously to the driving of the piles, the ballast was taken out and before replacing it, the ballast floor was pulled out, allowing the stones, when put in again, to rest upon the bottom. The superstructure was then raised level with the top of the wharf and the whole neatly finished.

The shed standing over the block, which had to be moved along, to provide room for the pile driver, was replaced and painted.

The pitch pine piles were bought and paid for out of the last year appropriation, and the amount expended to perform the work during the fiscal year ended June 30, 1905, was $1,548.66 exclusive of dredging.

This wharf is now in first class order.

ST. ROCH DES AULNAIS.

The village of St. Roch des Aulnais, in the County of L'Islet, is on the south shore of the River St. Lawrence, 66 miles below Quebec.

Spring tides rise 21 feet; neaps, 13 feet.

During the year 1904-05, to widen the head of the wharf, which was only 20 feet wide, an addition, 50 by 20 feet was built on the north side of the wharf, at the outer end; the crib is close faced, filled with stone.

A portion of the approach which was submerged at almost every high tide, has been raised 2½ feet on a length of 300 feet. The materials used were stone and gravel.

The expenditure during 1904-05 amounted to $2,499.99.

ST. SIMÉON.

St. Siméon is situated on the north shore of the St. Lawrence in the County of Charlevoix, 107 miles from Quebec. It contains two churches, five stores, two blacksmith shops and a large saw mill. The trade of this place is quite flourishing.

On October 28, 1904, a contract was entered into with Mr. Napoléon Trudel, for the construction of an approach to the isolated pier, built some ten years ago. This approach consists of a close face timber crib 425 feet by 30 feet filled with stone ballast. The contract price is $19,062.67.

This construction will prove a great amelioration to the village of St. Siméon and the surrounding district; and if the steamers of the Richelieu and Ontario Co. call at that wharf, the place is bound to become one of the most frequented summer resorts of the lower St. Lawrence.

At the end of June, 1905, the work was nearly half completed, and it is expected to be completed on the 1st September, 1905. The expenditure for the fiscal year 1904-05 amounts to $3,088.59.

TERREBONNE.

Terrebonne is an incorporated town in Terrebonne county, situated on River Jesus, a branch of the Ottawa, and on the Canadian Pacific railway, sixteen miles north of Montreal. It contains two churches, two telegraph agencies, express office, three hotels, fifteen stores, carding, shingle, fulling, saw and grist mills and manufactories of iron castings and agricultural implements. It possesses important water-power, partly used to light the streets and some private residences. There are extensive limestone quarries in the vicinity. Population 1,822.

As at St. François de Sales, on the opposite shore of River Jesus, it was decided to build a high and low level wharf at this place, and in June, 1905, materials costing $6,946.44 were bought to this effect.

The wharf will be commenced next year. It will stand downstream and alongside the old Masson bridge, the right of way being given to the Crown by the municipality. It will be 229 feet long, measured from the public road.

1. The high level portion will be formed: (a) Of three concrete piers distanced 40 feet at top and measuring 40 feet 9 inches by 9 feet 8 inches at bottom, 21 x 6 feet at top (the upstream face used as ice-breaker being inclined 1½ in 1, and nosed 90 degrees), 23 feet high from low water and resting on close-faced stone filled cribs, 44 feet by 13 feet, standing in an average of 3 feet of water. (b) A stone and earth approach 91 feet long, inclusive of concrete abutment, inclined in front 1 in 12, also 23 feet high, 3 feet deep at top with two 1-foot retreats at back augmenting depth to 5 feet at bottom, and 45 degree return wing. All the concrete shall be reinforced with 1½-inch iron bars and plates, washers and nuts.

2. The low level portion will be of the same length and built alongside and downstream of the high level one. It will be composed of a crib close-faced on downstream side, 10 feet deep and properly filled with stone so as to form a width of 18 feet at top, the upstream side between the concrete piers being riprapped 1 in 1 and standing 6 feet above low level, in an average of 3 feet of water.

THREE RIVERS.

The City of Three Rivers is situated on the northern bank of the River St. Lawrence at the mouth of the River St. Maurice, seventy-four miles below Montreal and sixty-eight miles above Quebec. Population, 10,000.

In June, 1902, a contract was entered into with Mr. Randolph MacDonald for the construction of a deep water wharf with a mooring face of 1,968 feet on the river side, with a return of 24 feet to connect the lower end of Dean's wharf. The contract includes the construction of an icebreaker, 50 x 100 feet and 53 feet high or 23 feet above low water.

Contract price, $280,500.

In 1902-03, the expenditure amounted to $49,914.21; in 1903-04, to $49,179.03.

During the fiscal year 1904-05, anchor piles, for a length of 1,392 feet of wharfage were driven, consisting of eighty-six groups, of which only fifteen were bunched. Round piles, 45 feet long, for a length of 900 feet were driven; squared piles, at 8-foot spaces, for a length of 618 feet, and sheet piles, for a length of 438 feet were placed; 30 anchor rods were put in place and 3,327 cubic yards of stone and 13,405 cubic yards of earth were deposited in the work.

Expenditure for the fiscal year was $39,201.35.

TOULADIE RIVER.

The Touladie river is one of the finest tributaries of Lake Temiscouata; is much frequented by American sportsmen for fishing and moose hunting.

Every year, an immense quantity of logs is driven down this river, from the upper lakes to Lake Temiscouata.

With a view to diminish the incline of rapids and allow the towing of boats by horse power, from Lake Témiscouata to Lake Touladie, an agreement was made with Messrs. Donald Fraser & Sons, of Cabano, to build a dam across the Touladie river, at about half a mile below Lake Touladie.

The dam has a total length of 365 feet, a width of 26 feet at the base, by a height of 14 feet, there are four sluice gates 12 feet wide, and a waste weir 3 feet high and 100 feet long, to provide for the overflow of water during freshets.

The work was completed in the month of October, 1904, and the amount paid to Messrs. Fraser was $2,500.

Total expenditure during last fiscal year, $2,500.

TROIS PISTOLES.

Trois Pistoles, in the County of Témiscouata, is a village on the Intercolonial Railway, twenty-five miles below Rivière du Loup; it is a flourishing centre to which converges an extensive traffic.

At about two and a half miles from the village, is the River Trois Pistoles, where Messrs. Tobin & Company own large saw-mills; the same company operates, about six miles up the river, a pulp mill where products are delivered to the Intercolonial, at McKenzie siding, by a railway branch.

With a view to protect the harbour from north-east winds, a breakwater was built across the cove, its length being 350 feet by a width of 20 feet on a mean height of 15 feet.

The work was commenced in May, 1904, and was nearly completed during the past fiscal year.

Spring tides rise 18 feet; neap tides, 10 feet.

The total expenditure during the past fiscal hear amounted to $3,742.32.

VERCHÈRES.

Vercheres is a post village and parish in Vercheres county, on the south shore of River St. Lawrence, and a station on the South Shore railroad, twenty-one miles north-east of Montreal. It contains a Roman Catholic church, four stores, one hotel, two saw-mills and a butter factory. Population, 1,689.

The Richelieu and Ontario Navigation Company has a small wharf at Vercheres, but it being private property and totally inadequate to the requirements of traffic, it was decided to build a public wharf. To this effect, materials were purchased in October and construction, by day labour, started in November, 1903, suspended during the winter and resumed in May, 1904. At the end of June of the same year, work was well under way. Expenditure, 1903-04, $5,228.

The wharf consists of : a pile-head block, 96 feet 6 inches at top with icebreaker inclined 1½ in 1 at upstream end, with a width of 40 feet 4 inches, standing 13 feet high above low water; a pile approach, 224 feet long by a width of 20 feet; and a stone embankment, 300 feet long by a width of 20 feet at top, with sides sloped 1 in 1.

Work was continued during last fiscal year and the wharf completed at the end of June. Expenditure, 1904-05, $3,010.69.

It was transferred to the control of the Department of Marine and Fisheries during the year.

VILLE MARIE (BAIE DES PÈRES).

Ville Marie, Pontiac county, is an important agricultural centre situated on Baie des Pères. It is a point of call for passenger and freight boats plying on Lake Temiskaming. There being no railroad connections, landing facilities are indispensable.

In 1887, the Dominion government purchased from the Lake Temiskaming Colonization Railway Company their wharf for the sum of $3,000 (See O.C. 83,568 ; 20-12-87). The wharf consists of an approach some 400 feet in length, 16 feet wide, leading to a landing head 26 by 43 feet in surface dimensions, the frontage of which is 26 feet. The whole structure is built of small open faced cribwork piers supporting the floor system, 15 feet above low water level.

In 1892, $68.12 was spent on repairs; the work was thoroughly repaired in 1895, at a cost of $945.63; and in 1896, $25.65 was expended on the wharf. The head of the wharf has been added to materially by the navigation interests.

At its session of 1903, parliament appropriated $2,500 towards required repairs to the upper structure of the government part of the wharf, but no repairs were made that year, because local interests demanded that the amount available be applied towards the construction of a wharf, on a different site, which, upon examination, proved not to be practicable.

The sum of $2,500 was revoted in 1904. During the fiscal year 1904-05, some urgent repairs were made at a cost of $356.23, but on account of interference with the heavy traffic the work was only of a temporary nature. The sum of $160.43 was paid to the Lumsden Line Steamers for repairs between 1896 and 1904. Orders were placed for 75 per cent of the materials required for the reconstruction.

Expenditure during the fiscal year 1904-05, $516.66.

Total expenditure to date, $4,556.06.

PROVINCE OF ONTARIO.

ALLENDALE OR BARRIE.

Allandale, a ward of the town of Barrie, is situated on Kempenfeldt bay, an arm of Lake Simcoe, and is distant 66 miles north-west from Toronto.

At the last session of parliament, the sum of $2,500 was appropriated for a wharf and dredging at Allandale ward, town of Barrie, and authority was given on July 22, to expend the amount.

The work consisted in the building of a wharf composed of stone approach, 270 feet in length, and cribwork with concrete superstructure at outer end, 100 feet in length. Work commenced on October 13 and closed down for the winter on November 26. Work was resumed on March 20 and was continued to June 30.

Total expenditure for fiscal year, 1904-05 :—

Labour and superintendence	$1,443 00
Materials	1,157 00
	$2,600 00

AMHERSTBURG.

Amherstburg, County of Essex, township of Malden, is situated on the east bank of the Detroit river, about 5 miles from Lake Erie and 18 miles south of Windsor, to which place it is connected by electric car service.

The Michigan Central railway also runs into Amherstburg. Population about 2,500. It is one of the oldest settlements in Ontario.

During the last session of parliament the sum of $2,000 was appropriated for the removal, by day labour, of large boulders in the vicinity of the south end of the town, to facilitate the approach from the main channel to the docks, on water front ; those boulders are to be utilized for the protection of the river bank against scouring, along the Malden front. Work commenced on September 20, 1904, and continued until November 19, 1904.

The total expenditure during the fiscal year 1904-05, was $4,271.22.

BARRY'S BAY.

Barry's Bay, in the County of South Renfrew, on the Ottawa division of the G.T.R., is at the head of a thirty-mile stretch of the Madawaska river, accessible to boats of shallow draught. On account of rich corundum deposits, a heavy traffic has developed.

At its session of 1904, parliament appropriated the sum of $4,500 towards the construction of a wharf at this place. A supplementary amount of $256 was granted during the session of 1905.

The work was awarded by contract in August, 1904, for the sum of $4,433. Construction commenced in September, 1904, and was completed in November of the same year. The structure consists of a close-face cribwork landing block, measuring 25 feet in width by 100 feet on the front where there is a depth of 3½ feet at lowest water. The flooring stands 6 feet above L.W.L. There are suitable wagon and railway approaches formed of stone riprap and earth filling. The former, 107 feet long has a minimum width of 16 feet at the top, and the latter, 300 feet in length and 12 feet in top width, is built on a curve of 12° with the face of cribwork as tangent.

Extras paid to the contractor amounted to $115.64: for adding a slip; building a temporary landing, and extending the flooring. The cost of inspection was $257.

In the spring of 1905, the wagon approach and adjacent roadway, having suffered from freshets, were repaired at a cost of $51.75.

Expenditure during fiscal year 1904-05, was $4,770.74.

BAYFIELD.

Bayfield, a village in the County of Huron, situated on the eastern shore of Lake Huron, at the mouth of Bayfield river, 12 miles south of the town of Goderich. There is one grist and saw-mill at this place, but the principal industry is fishing.

At the last session of parliament the sum of $3,200 was appropriated for repairs to the north pier and approach, and on August 8, 1904, orders were issued to proceed with repairs by day labour. Arrangements were also made with the Marlton Dredging Company, of Goderich, to do the required dredging.

The Marlton Company's plant worked 330 hours between the 15th August and 4th October, 1904, removing 20,400 cubic yards of hard clay, gravel and sand.

The work done on repairs to piers consisted in the renewal, from low water level, of about 200 feet of the superstructure of the north pier, the renewal of a portion of the rear wall and the placing of stone filling in south pier.

Some dredging was done at the entrance to the harbour and between piers.

Total expenditure during fiscal year 1904-05:

Labour and superintendence	$ 108 58
Materials, timber, iron, stone, &c.	213 67
Dredging, including inspector's wages	2,828 88
	$3,151 13

BAYSVILLE.

Baysville is a small village of 200 inhabitants, situated on the south branch of the Muskoka river, in the Muskoka district, and distant 16 miles east of Bracebridge, the nearest railway point.

At the last session of parliament, the sum of $1,200 was appropriated for the construction of a pile wharf on the Muskoka river, at this place, and on the 10th September, authority was given to expend the appropriation.

On the 26th September, orders were issued to divide the appropriation, so as to build a wharf on the west side of the river to cost $900.00, and a smaller one, on the east side, to cost $300.00. Work on the west side, commenced on the 6th October, and closed down for the winter on the 8th December, 1904.

The work consists in the construction of a pile wharf, 75 feet long and 25 feet wide, on the west side, and a wharf, 20 feet by 30 feet on the east side of the river.

Total expenditure for fiscal year 1904-05, $1,219.33.

BEAVERTON.

Beaverton is a thriving village also a summer resort, situated on the easterly shore of Lake Simcoe, seventy-two miles north of Toronto and in the County of Ontario. Population about 1,000. It is on the line of the Midland branch of the Grand Trunk railway, and also on a branch line of the James Bay railway.

During last session of parliament $11,000 was appropriated for dredging, construction of pile protection work and sheet-piling for landing places in the harbour.

Work was commenced on October 9, 1904, and on June 30, 1905 the following work had been done :—

Two hundred and fifty-one feet of pile protection work was completed at outer end of breakwater on northerly side of harbour.

Anchor piles for 160 feet of sheet-piling for landing places, on each side of the river were driven.

Stone filling was placed in openings in the existing wharf, on the southerly side of the entrance to the river.

Owing to the hardness of material met with in the bottom, it was found necessary to defer the driving of the sheet-piling, until after the dredging is done at this place.

Total expenditure for the fiscal year 1904-05, $2,975.46.

BELLE RIVER.

Belle River is situated on the south shore of Lake St. Clair, on the London and Windsor division of the Grand Trunk railway, ninety-three miles from London and seventeen miles from Windsor. It is a French settlement with about 1,000 inhabitants. Farming is the principal industry in the neighbourhood.

At the last session of parliament the sum of $7,900 was appropriated for repairs and construction of close-piling and dredging of entrance channel to river, &c.

On July 22, 1904, authority was given for the renewal of sheet-pile protection work, on the westerly side of the entrance to the river, which work was completed on November 17, 1904. On February 4, 1905, further authority was given for the expenditure of $1,200 for the construction of sheet-pile protection work, on easterly side of the entrance to the river, for the protection of the bank and highway at this point. This work was commenced on February 11 and completed on May 17, 1905.

The total work done consisted in the construction of 266 feet of 7-inch close-piling 16 feet long, on the westerly side of entrance to the river, and 145 feet of similar piling on the easterly side of the river.

The total expenditure for fiscal year 1904-05:

Labour and superintendence	$ 653 52
Materials, timber, iron, &c.	1,759 76
	$2,413 28

BLANCHE RIVER.

The Blanche empties into Lake Temiskaming just west of the Quebec boundary. It is navigable to Tomstown, twenty-six miles from the mouth. On an average the width is 150 feet and the depth 10 feet. The river runs through a clayey formation interspersed with thin sand strata dipping towards the stream. The landslides which are of common occurrence have so obstructed the bed by the accumulation of sediment on account of the residual snags, that extensive works are necessary to restore to the settlers their only highway. Traffic is heavy, considering that one to two steamboats make the round trip of ninety miles from New Liskeard daily.

At its session of 1904, parliament appropriated $7,000 to begin operations. During the navigation season of 1904, the waters of Lake Temiskaming remained comparatively high, delaying the commencement of operations.

On June 30, 1905, the sum of $181.30 had been spent in preliminary work of building a snagboat.

Expenditure during fiscal year 1904-05, $181.30.

BLIND RIVER.

Blind River is a village situated on the north channel of Lake Huron, in the district of Algoma, it is a station on the Canadian Pacific railway. Extensive lumbering operations are carried on at this place.

At the last session of parliament, the sum of $7,000 was voted to complete the wharf at this place; for dredging a channel to the wharf, and $1,600 for a warehouse, 40 feet by 75 feet. Authority was given on June 23 and September 10, to expend these amounts.

Warehouse.—Work was commenced on the warehouse on July 6, and the building was finished on September 30. In building same, the following quantities of materials were used : 32,632 f.b.m. pine, 34,000 shingles, 1,576 pounds iron and 350 brick.

Dredging.—Dredging of the channel was commenced June 29, and finished November 5, 1904. The dredge worked 1,164 hours removing 39,269 cubic yards of material at a cost of $9,212.

Total expenditure for fiscal year, 1904-05, $11,203.71.

BOWMANVILLE.

Bowmanville, or Port Darlington, is situated on the north shore of Lake Ontario, County of Durham, forty-three miles from Toronto, by rail, on the Grand Trunk division of the main line between Toronto and Montreal. Population, 3,500.

At the last session of parliament, the sum of $2,600 was appropriated for repairs to breakwater at this place, and authority was given on July 22, to expend the amount by day labour. Work was commenced on September 13, and closed down on September 21, on account of continued rough weather, and was recommenced May 8, and completed June 30.

Total expenditure for fiscal year, 1904-05:—

Labour and superintendence	$ 511 75
Materials	2,088 25
	$2,600 00

BRACEBRIDGE.

Bracebridge is a town situated on the north branch of the Muskoka river, district of Muskoka, 125 miles by rail, north of Toronto.

At the last session of parliament, the sum of $5,800 was appropriated for the construction of a wharf at this place, and authority was given on October 20, to expend this amount.

A contract was let on October 31, to John Baker, of Bracebridge, for the sum of $8,200 to construct a crib wharf, 150 feet long by 20 feet wide, with a backing of stone 150 feet long, to fill in completely from the rear of the crib structure to the shore.

Work was commenced on October 28, and was completed June 24, 1905.

Total expenditure for fiscal year, 1904-05, $6,960.91.

BRONTE.

Bronte is a village in the County of Halton, on the north shore of Lake Ontario, twenty-seven miles south-west of Toronto.

At the last session of parliament, the sum of $3,000 was appropriated to complete repairs to piers at this place, and authority was given on September 10, 1904, to expend $2,000 and on October 19 to expend $1,000. Work commenced on September 22, and continued until November 29, when work closed down for the winter. Work was resumed on April 8 and was finished June 30.

The following work was completed :—

Two cribs, 50 feet long, 24 feet wide and 16 feet deep were sunk in extension of east pier; one crib 40 feet long, 16 feet wide and 10 feet deep was sunk in extension of west pier; 114 feet of superstructure of the eastern pier, at inside end of harbour, 2 feet in depth was renewed.

Total expenditure for fiscal year 1904-05, $3,532.81.

BURKE'S FALLS.

Burk's Falls is a village of 650 inhabitants situated in the Township of Armour, in the district of Muskoka, on the Grand Trunk railway, 56 miles south of North Bay.

Authority was given on May 15, 1905, to expend the sum of $35 in painting the government storehouse at this place, and a contract was let to Adrian Baillod to do the work for the above price.

Work was completed on June 27, and final estimate given.

Total expenditure for fiscal year 1904-05, $287.

BURLEIGH FALLS.

Burleigh Falls is a summer resort at the head waters of Stoney lake, Peterboro county.

At the last session of parliament, the sum of $1,200 was appropriated for the construction of a wharf at this place, and on September 10, authority was given to expend this amount. $200 extra was granted on May 1, 1905.

The work consists in the construction of a crib and space wharf 130 feet in length. Work commenced on September 28 and continued until January 7, when it ceased for the winter. Operations were resumed on May 1, and work was completed on May 8.

Total expenditure for fiscal year 1904-05 :—

Labour and superintendence	$ 656 76
Materials	788 65
	$1,445 41

BURLINGTON CHANNEL.

Burlington Channel, in the County of Wentworth, is simply a cut through a piece of low land which partly separates Lake Ontario from a large sheet of water called Burlington bay, enabling vessels to reach the wharfs at the city of Hamilton.

At the last session of parliament, the sum of $23,000 was appropriated to complete renewals and repairs to the structures at this place.

On October 19th, 1901, a contract was let to Mr. James Clark, of Goderich, for $96,700 to reconstruct the superstructure of the west end of the south pier, and to protect the channel sides of both piers with sheet piling. The work was completed on December 1st, 1904.

The swing bridge staff was employed from July 1st to December 20th, when the lights were put out and navigation closed for the season; commencing again April 1st and continuing for the season.

Authority was given on September 14, 1904, to expend $650 in repairs, and was again given on October 19, to expend $2,700 in extra repairs to lake end of south pier, also on September 13, authority was given to expend $400 in building crib for ferry slip, and on September 19, authority was given to purchase 4,000 cubic yards of stone.

The following repairs were made: building crib in old ferry slip; filling in stone between sheet piling and old pier, and repairing east end of south pier.

Total expenditure for fiscal year 1904-05, $31,005.28.

CAPE CROKER.

Cape Croker is an Indian settlement and reservation on the west shore of Georgian bay, fifteen miles north-east of Wiarton.

At the last session of parliament, the sum of $2,400 was appropriated for the construction of a wharf 247 feet in length, and authority was given on February 3rd to expend this amount. Work was commenced on March 28, and completed on July 6th.

Total expenditure for fiscal year 1904-05, $2,340.70.

COBOURG.

Cobourg is a large town situated on the north shore of Lake Ontario, in the County of Northumberland, on the main line of the Grank Trunk railway, 66 miles east of Toronto.

At the last session of parliament, the sum of $3,000 was appropriated for repairs to wharf at this place, and authority was given on June 15th to expend this amount. Work commenced on June 17th, 1905, and was completed on 30th of the same month.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$ 131 50
Materials	2,868 50
	$3,000 00

COLCHESTER.

Colchester is a village situated on the north shore of Lake Erie, in the Township of Colchester, in the County of Essex, about four miles south of Harrow, the nearest point on the line of the Père Marquette railway. Population about 200.

It is the centre of a very progressive farming district, and more particularly in the raising of tobacco, corn and hogs.

During the last session of parliament, the sum of $1,200 was voted for the construction of a landing wharf, the inner approach to which will also serve the purpose

of acting as a groyne, for the protection of the shore line to the eastward, from further erosion by heavy seas.

On May 11, authority was given to proceed with this work, but owing to the difficulty found in securing a suitable foreman nothing was done before the end of the fiscal year.

COLLINGWOOD.

Collingwood is situated on the south shore of Georgian bay, Township of Nottawasaga, County of Simcoe, ninety-four miles by rail from Toronto. It is the terminus of the Northern and Hamilton and North-western railway. There is an extensive trade in ship building, grain and lumber, and it is the starting point for the steamers for Owen Sound, Sault Ste. Marie and Parry Sound. Population, 5,000.

As constituted now, the harbour is very large and commodious, being protected on the north and east sides by extensive breakwaters.

At the last session of parliament the sum of $40,000 was appropriated for harbour improvements at this place, and authority was given to employ Mr. C. S. Boone to do the dredging on September 4, 1903. Work was commenced on July 1, and closed for the season December 3. The dredge worked 1,488½ hours, removing 28,781 cubic yards of rock, 12,068 hard pan and 108 yards mud, and on special work, 2,703 yards rock working 130½ hours.

A contract was let to J. D. Conroy, of Peterboro', for an extension to the town wharf, and the rebuilding of the present structure. So far no work has been done on this contract.

Total expenditure for fiscal year, 1904-05, $97,214.05.

CORNWALL.

Cornwall, the chief town of the united counties of Stormont, Dundas and Glengarry, is situated at the mouth of the Cornwall canal, on the River St. Lawrence, on the line of the Grand Trunk railway, sixty-seven miles south-west of Montreal, and 105 miles east of Kingston. It is a port of entry. The Cornwall canal gives it excellent water privileges which are taken advantage of by several large mills and factories erected on its banks, among them: two cotton mills, two woollen mills, two grist-mills, one saw-mill, three planing mills and one sash and door factory. Population, 6,704.

During 1902-03, the 'Up River wharf,' situated on Crown land, opposite the canal bridge at the foot of Augustus street, on the River St. Lawrence, being extremely dilapidated, was removed to 1 foot below the extreme low water level, and rebuilt on a height of 5 feet and a length of 152 feet and 10 feet wide; at the downstream end, an extension 75 feet long, 10 feet wide and 13 feet high was built and sunk in 8 feet at low water; a return wing 66 feet long, 10 feet wide, was built to the shore; the whole well ballasted with stone.

The wharf is parallel with the shore, and has a total length of 227 feet, by a height of 13 feet, and stands in 9 feet at low water, with an icebreaker at its upstream end. The outer face is built with close-faced timber, 12 x 12 inches, laid to a batter of 1 in 12. The corners are protected with steel boiler plates ⅜-inch thick.

The top is planked over for a width of 12 feet, from the outer face of the wharf, and the space between that floor and the shore has been filled in on the whole length to the level of the wharf with dredged materials, on which has been put a layer of gravel.

A storehouse, 12 x 18 feet, has been erected on the wharf and the road, from the bank of the canal, has been improved and put in good condition.

Dredging has been performed in front of the wharf on a length of 300 feet by a width of 24 feet and a depth of 4 feet.

The work, carried out by day labour, was commenced in May and completed in June, 1903. Cost of construction, $3,841.92 ; cost of dredging, $960. Total cost $4,801.92.

During the early spring of present fiscal year, the wharf having been slightly damaged by ice to the extent of some cap pieces and three tiers on downstream side being torn off, these were replaced at a cost of $88.07. The wharf is now in good condition.

CUMBERLAND.

Cumberland village, in the County of Russell, is situated twenty miles below Ottawa and two miles south of Buckingham junction, on the Canadian Pacific railway. Besides the regular ferry service, the wharf provided for considerable traffic from passenger and freight boats plying on the River Ottawa.

At its session of 1904, parliament granted the sum of $7,000 towards the construction of a wharf at this place.

The work was awarded by contract on May 31, 1901, for the sum of $6,275. Preliminary work commenced in September, 1904, and construction was completed in March, 1905. The cost of inspection amounted to $369.

The wharf consists of a double-deck landing pier, 30 feet by 90 feet on a very irregular rock bottom. There are two approaches 18 feet wide, 20 feet and 178 feet long respectively. The structure is of close-face cribwork, structural steel and dry masonry. Elevation of high-level flooring 15 feet above lowest water, at which stage a minimum depth of 8 feet is available for navigation.

On June 30, 1905, a further sum of $421.77 had been expended on the addition of two slips and in procuring the materials required for a freight shed.

Expenditure during fiscal year 1904-05, $7,298.50.

DEPOT HARBOUR.

Depot Harbour is situated on the north-east coast of Georgian bay, in the district of Muskoka, sixty miles north of Collingwood, and three miles by water from Parry Sound. It is the western terminus of the Canada Atlantic railway, lately acquired by the Grand Trunk railway; it is a point of transhipment for grain from the west; is distant from Ottawa, 263 miles by rail (for further description see report of 1903-04).

In May, 1902, a contract was awarded to Messrs. Davis, Haney & Miller for the construction of an extension to the elevator wharf towards Supply island, and a landing pier at the inner end of the harbour.

At the end of the fiscal year 1904-05, the extension, 525 feet long and 80 feet wide, was completed, and the landing pier 500 feet long with the approach, and 150 feet wide was nearly completed; there remaining only a small portion of the filling to be done, it has since been finished and accepted.

The amount expended during the fiscal year 1904-05, was $99,110.34.

DUNNVILLE.

Dunnville is a prosperous town, situated on Grand river, five miles from Lake Erie, on the line of the Grand Trunk railway. Population about 2,000.

Owing to the dredging performed at entrance to the river at Port Maitland, and dredging at the town dock at this place, lake vessels are enabled to proceed up the river directly to town dock.

At intervals, during the months of July, August and September, 1904, the dredging of a channel, in Sunfish creek, about 45 feet wide and approximately 1,200 feet long to a depth of 11 feet was performed by Mr. C. S. Boone, of Toronto, to provide a suitable outlet for the drainage from the town to the river.

Expenditure will be found in Chief Accountant's report under the name of 'Grand River.'

ECHO BAY.

Echo Bay is a small village on the 'Soo' branch of the Canadian Pacific railway, and is distant 18 miles east of Sault Ste. Marie.

At the last session of parliament, the sum of $5,000 was appropriated for the construction of a wharf at this place.

Plans and specifications were prepared for a structure to consist of a rubble stone causeway approach, 1,280 feet in length, and a pile wharf at outer end, 798 feet in length.

Tenders were called for, and a contract was let to Mr. Wm. Birmingham, Sault Ste. Marie, to construct the wharf, for the sum of $17,450.

On February 18, authority was given to substitute pilework instead of a stoneway approach, at an additional cost of $7,000.

Work was commenced on January 6, and is still under way.

Total expenditure for fiscal year 1904-05, $5,015.25.

GODERICH.

Goderich is situated on the shore of Lake Huron, at the mouth of the Maitland river, in the County of Huron, about 68 miles from Sarnia and 62 miles from London. It is the terminus of the Buffalo and Goderich branch of the Grand Trunk railway, and of the Guelph and Goderich branch of the Canadian Pacific railway, now under construction. Population about 5,500.

It is a place of considerable importance, making rapid advancements in manufacturies and shipping.

On August 8, 1904, a contract was let to Messrs. Battle and Conlon, for the sum of $74,000, to construct a breakwater 500 feet long and 35 feet wide, for the purpose of protecting the entrance to the harbour.

The breakwater is built of close face cribwork filled with stone ballast: the superstructure, which reaches to 8 feet above low water level, is composed of concrete walls and top, with stone filling between concrete cross-walls, built at 20 foot intervals throughout structure.

The above work was commenced on January 9, 1905, and by June 30, 1905, about one-half of the work was completed at an expenditure of $38,945.

At the last session of parliament, the sum of $20,000 was appropriated for repairs to piers, and dredging. The former being performed by day labour.

The work done on the piers consisted of the reconstruction of 1,013 feet of the superstructure of the north pier, to a height of 6 feet above low water level, and some slight repairs to the decking of the south pier.

Between August 5 and November 28, 1904, dredging was performed by the Marlton Dredging Company, of Goderich, in channel between piers and in inner harbour, at the rate of $8 per hour; the time employed being 375 hours. The amount of material removed was 24,532 cubic yards.

From May 6 to June 24, 1905, dredging was again performed by the Marlton Dredging Company, between piers and in inner harbour, removing 21,376 cubic yards of clay, gravel and sand.

The total expenditure during the fiscal year 1904-05, amounts to $35,147.32, including $2,502.66 for dredging.

GORE'S LANDING.

Gore's Landing is a small village of some 100 inhabitants, and is situated in the County of Northumberland on the south shore of Rice lake, 12 miles from Cobourg.

At the last session of Parliament, the sum of $1,000 was appropriated for repairs to the wharf at this place, and authority was given on June 15, 1905, to expend this amount.

Total expenditure for fiscal year 1904-05:

Labour and superintendence	$115 00
Materials	884 88
	$999 88

GRAND BEND.

Grand Bend is situated on the shore of Lake Huron, at the mouth of Sauble river, about 15 miles from Exeter, which is the nearest station, on the Wiarton, Grey and Bruce division of the Grand Trunk railway, and about 30 miles south of Goderich.

A contract was awarded to the late Mr. John D. Warwick, of Brockville, on March 26, 1904, for the construction of wharf and approach to same for the sum of $21,388. The actual construction was commenced about the middle of April, 1905, and by June 30, 1905, slightly more than half the work had been finished.

This wharf, when completed, will be 548 by 20 feet including 100 feet of stone approach. It is to be constructed of timber and composed of close cribbing, with continuous superstructure, the top of which will be about 6 feet above low water level. It will be of great commercial service, and provide a harbour of refuge.

In April, 1905, a contract was also awarded to the late Mr. J. D. Warwick for the dredging of entrance to the channel 50 feet wide, into the Sauble river. Up to June 30 this work had not been commenced.

The total expenditure during the fiscal year 1904-05, including superintendence, was $11,378.00.

HAILEYBURY.

The town of Haileybury, on the west shore of Lake Temiskaming, is the first lake port on the route of the T. and N. O. Ry., 180 miles from North Bay. Naturally it links the rail and water traffic; navigation extends over a distance of 150 miles. It is 5 miles from Cobalt, the centre of an important mineral district.

In the fiscal year 1900-01, the building of a wharf was commenced to accommodate the local trade. The sum of $2,000.22 was expended. No work of consequence was done during the fiscal year 1901-02, the expenditure being only $84.50.

During the fiscal year 1902-03 active work of construction was resumed, the outlay was $3,573.98.

During the fiscal year 1903-04, a landing head, 40 by 60 feet dimensions, of sheet pile understructure and open-face cribwork superstructure with stone filling was built to a height of 7 feet above L.W.L., incorporating a smaller crib, 20 by 30 feet dimensions which had been sunk in 10 feet of water at an earlier date. The stone approach, which is to be 516 feet in length and 16 feet wide at the top, was added to materially, but not completed to its full height. The expenditure for the fiscal year 1903-04 being $6,895.41.

During the fiscal year 1904-05, the stone approach, having proved its worth as an ice-breaker, was completed to its full height of 12½ feet on 85 per cent of its length, and to 9 feet on the outer portion, 75 feet long. It has been found advisable to defer, for the time being, the placing of the full weight upon the foundation of the latter section, where some trouble had been caused by subsiding. The landing head was extended to its present dimensions of 111 feet frontage on a width varying from 20 feet to 50 feet, and raised to an average elevation of 10½ feet above L.W.L.

Expenditure for fiscal year 1904-05, $6,008.74.

Though not fully completed, this structure is gradually becoming the backbone of the most important harbour on the lake. In the fall of 1904, the freight for New Liskeard, 5 miles away, was handled three weeks after the close of navigation at that place. This condition is likely to recur often.

HAMILTON.

Hamilton, a city of 50,000 inhabitants, is situated on the south side of Burlington bay, an arm of Lake Ontario.

At the last session of parliament the sum of $30,000 was appropriated for harbour improvements at this place.

Plans were prepared for a revetment wall 1,855 feet in length, in the harbour and at the north end of the city, extending from St. Catharine street to Wentworth street, to be constructed of a double row of steel interlocking piles, filled with riprap and covered with a brick paved top, the estimated cost being $116,000.

HILTON.

Hilton is a small village situated on St. Joseph island, in the north channel of Georgian bay.

At the last session of parliament the sum of $600 was appropriated for repairs to wharf at this place, and authority was given on September 10 to expend this amount.

Work was commenced on April 18, and finished on June 30, 1905.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$ 232 31
Materials	364 95
	$ 597 26

HOLLAND RIVER.

Holland river is situated in the township of West Gwillimbury, and forms the boundary between the counties of York and Simcoe, forty-one miles north of Toronto. This river runs into Cook's bay, an arm of Lake Simcoe.

Authority was given on October 11 last, to expend the sum of $600 in rebuilding the wharf at this place, 100 x 12 feet. Work was started on October 25 and completed on November 16, 1904.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$ 314 12
Materials	198 36
	$ 512 48

HONORA.

Honora is a village on the east shore of Manitoulin island, district of Algoma, distant thirteen miles from Little Current.

At the last session of parliament, the sum of $6,400 was appropriated to complete the wharf at this place.

A contract was let on February 22, 1904, to Messrs. Kastner & Porter, Wiarton, to construct this wharf for the sum of $7,900. Work was continued on July 1 and completed on August 26.

Total expenditure for fiscal year 1904-05, $8,074.

HUNTSVILLE.

Huntsville, a town of 1,500 inhabitants, is situated on the northern division of the Grand Trunk railway, 145 miles north of Toronto.

At the last session of parliament, the sum of $500 was appropriated for the construction of an approach to the wharf at this place, and on September 10, authority was given to expend this amount.

Work commenced on October 1 last, and was completed November 4.

Total expenditure for fiscal year, 1904-05 :

Labour and superintendence	$208 25
Materials	281 65
	$489 90

KINCARDINE.

Kincardine, in the County of Huron, on the shore of Lake Huron, thirty-nine miles south of Southampton, and thirty-two miles from Goderich, is the terminus of the Wellington, Grey and Bruce division, of the Grand Trunk railway.

The principal industries are :—Two furniture factories, boiler and machine works, and salt works.

Population about 2,800.

At the last session of parliament, the sum of $1,000 was appropriated for repairs to piers, &c., at this place, and on July 22, 1904, instructions were issued to proceed with this work, by day labour.

The repairs done consisted of the re-construction of about 100 feet of breast work on the south dock 8 feet in depth, the placing of 1,095 feet 8 x 10-inch oak and cedar waling on the south and east docks of basin, and planking.

The work was completed on October 27, 1904.

The total expenditure during the fiscal year 1904-05 :

Labour and superintendence	$448 94
Materials, timber, iron, &c.	550 76
Total	$999 70

LAKEPORT.

Lakeport (the port of Colborne), is situated on the north shore of Lake Ontario, fourteen miles east of Cobourg, in the west riding of Northumberland.

At the last session of parliament, the sum of $2,300 was appropriated for repairs to wharf at this place, and authority was given on September 15 to expend the appropriation.

Work commenced on July 18, and closed down for the winter on November 26, and was resumed on June 12, and completed on June 30.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$1,848 51
Materials	651 00
	$2,499 51

LEAMINGTON.

Leamington is a thriving town situated on the shore of Lake Erie, in the County of Essex, about twenty-seven miles east of the mouth of the Detroit river, and on the line of the Père Marquette railway. Population about 1,500.

At the last session of parliament, the sum of $4,200 was appropriated for repairs to wharf and for the construction of a warehouse. Authority was given to proceed

with the work on September 10, 1904. Material was procured and work commenced October 24, 1904, continuing until November 5, and was resumed about the middle of April; it was still in progress on June 30, 1905.

The work done consisted of the driving of 240 running feet of sheet piling, 30 feet long and 8 inches thick, along face of pier towards outer end; the placing of 220 lineal feet of 9 x 12-inch waling and 45½ cords of stone filling. The warehouse, 15 feet by 50 feet was also partly constructed.

The expenditure during the fiscal year, 1904-05, was $4,134.43.

LION'S HEAD.

Lion's Head, a village of 500 inhabitants, is situated on the west shore of Georgian bay, 22 miles north of Wiarton, in the township of Eastnor.

Orders were issued on October 3, 1904, to expend the sum of $500 in repairs to wharf, which had been damaged by fire.

Work was commenced on October 17, and was completed on November 3.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$140 00
Materials	381 00
	$521 00

L'ORIGNAL.

L'Orignal, a post village in Prescott county, on the south shore of the Ottawa river, 3 miles across the river from Calumet station on the Canadian Pacific railway and 66 miles west of Montreal. It contains, besides the county buildings, 4 churches, 1 telegraph office, several insurance agencies, grist and saw mills, three stores and three hotels. Two weekly newspapers are published in L'Orignal. Population, 1,000.

The wharf is the most important one, on the river, between Ottawa and Grenville, and is the only landing for the freight and passenger traffic of the village and to a large extent of the county. It was built a length of 534 feet under commissioners of the provincial government, prior to the union, in 1841. In 1876-77, it was found necessary, owing to the filling up of the bay, to extend it 800 feet or to a total length of 1,354 feet, including the outer block which is 30 feet long and 120 feet wide. The long approach to this outer block was built 22 feet wide, consisting of cribs 10 feet by 22 feet, united by platforms of an average span of 34 feet. The work was done by the municipality, aided by a grant of $2,000 from the provincial government.

In the spring of 1884, part of the superstructure was carried away by ice, and rebuilt by this department in the years 1884, 1885, 1886 at a cost of $7,266.49. The vote of 1884 was supplemented by a grant of $1,000 from the municipality. The above amount also covers the expense of dredging done by the *Nipissing* in front of the piers during the seasons of 1884 and 1885.

In 1896-97, an examination of the wharf was made at a cost of $191.15. It was found that the approach, being in a very dilapidated condition, could not long stand the constant travelling of heavy loads over its uneven roadway. Ten of the shore cribs had also been moved bodily from their original positions to distances varying from 3 to 22 feet, and part of eight others had been shifted from their position and heavily damaged. It was therefore decided to rebuild the whole approach, 1,323 feet long from shore to outer block, along the downstream side of former one. In June, 1897, a contract for the above was entered into with Messrs. J. N. Munroe and W. Murray, for the sum of $13,417.12. It called for the construction of : 1. A stone and earth embankment 623 feet long and 25 feet wide at top with side slopes of 1 in 1 and built to an elevation of 19¼ feet above extreme low water. 2. A trestle approach 700 feet long and 20 feet wide with bents 12 feet apart and composed of 6 piles.

driven 15 feet in the ground and covered with 4-inch planks well secured to the floor stringers.

At the end of 1897-98, the contract work was not quite completed, there remaining yet a number of braces to be laid and secured on each side of the bents. During the year, the sum of $13,850.27 was expended including the purchase of materials for the reconstruction, by day labour, of the outer block from low water level.

During 1899, the contract work was completed and work on the head block done as above. It was rebuilt to a height of 19 feet, a freight shed 40 by 20 feet and a waiting room 20 by 16 feet constructed on the wharf, and a pathway 3 feet wide, of 3-inch pine deals, placed for a length of 700 feet. The railing of the approach 1,360 feet long was painted. Total cost, $6,009.12.

In 1900, minor repairs to the extent of $59.95 were made.

During April, 1904, the floor of the trestle approach, 700 feet long, was redoubled with 3-inch pine plank, the roof of the freight shed repaired and the stone embankment, 623 feet long, regravelled. The whole at a cost of $974.52.

In February, 1905, some piles and braces having been damaged by the ice, these were repaired at a cost of $43.78.

MCGRAKEN'S LANDING.

McCraken's Landing is situated on the south shore of Stony lake, in the County of Peterborough, and is distant 12 miles north-easterly from Lakefield, on the Trent valley system.

At the last session of parliament, the sum of $900 was appropriated for repairs and improvements at this place, and authority was given on September 10th to expend this amount.

Work was commenced on November 1 and closed down for the winter on November 18, and was recommenced on January 12 and was completed January 31.

The work consisted in building an additional pier, 15 by 40 feet by 11 feet.

Total expenditure for fiscal year 1904-05:

Labour and superintendence	$296 86
Materials	485 01
	$781 87

MALLORYTOWN.

Mallorytown is a small town on the main line of the Grand Trunk railway, and is distant 14 miles west of Brockville, in the County of Leeds.

At the last session of parliament, the sum of $3,300 was appropriated for a landing pier and dredging at this place and authority was given on September 10 to expend this amount.

It appears that the landing pier was built by the Department of the Interior, but, owing to high water, there was no way of getting to Bridge island, on which the wharf was located.

Authority was given on October 31, to expend the sum of $1,000 in constructing a causeway approach.

Work was commenced on December 1, and closed down for the season on December 23 for the winter, and recommenced on January 2 and was completed March 31.

An extra $500 was granted on April 17, 1905, to complete roadway.

Total expenditure for fiscal year 1904-05:

Labour and superintendence	$857 00
Materials	142 04
	$999 04

MEAFORD.

Meaford is an incorporated town in the County of Grey, on the west side of Georgian bay, 18 miles west of Collingwood, and 20 miles to the eastward of Owen Sound. It is the terminus of the northern division of the Grand Trunk railway. Population, 2,500.

At the last session of parliament, the sum of $22,000 was appropriated for a new breakwater pier, and $3,000 for repairs at this place; authority was given to expend the amount for repairs ($3,000) on July 22 last. Work was commenced on September 14, and closed for winter on November 15, recommencing May 15 was continued to June 30, when work was finished.

The work consisted in building 140 feet of new superstructure, 19 feet 6 inches wide and 4 feet 4 inches high on the old breakwater.

On August 23, 1904, a contract was let to Messrs. Gastner & Porter, of Wiarton, for the sum of $59,800, for the construction of the breakwater pier. Work was commenced on April 6, and is still in progress.

Total expenditure for fiscal year 1904-05, $20,505.81.

MIDLAND.

Midland, Simcoe county, is the terminus of the Midland division of the Grand Trunk railway on Georgian bay. Population, 3,500. Large quantities of lumber are shipped to and from this harbour, and the railway company has two large grain elevators at this place. There is also a large smelting works in operation.

At the last session of parliament the sum of $16,000 was voted for improvements at this place.

Work was continued by the Owen Sound Dredging Company's plant in deepening the harbour mostly in the neighbourhood of the Esplanade. The dredge worked from July 1 to December 3, and from May 8 to June 30, and during that time removed 65,112 cubic yards, working 2,059 hours.

A ledge of rock projecting from under the Esplanade dock was removed by blasting, at a cost of $947.90.

Work was continued on the contract let to Angus A. McDonald, on November 2, 1903, for the sum of $19,492 for the construction of two wharfs which were finished on October 12, 1904.

Total expenditure for fiscal year 1904-05, $38,099.37.

NEWCASTLE.

Newcastle is situated in the County of Durham, on the north shore of Lake Ontario, forty-seven miles east from Toronto. It contains large woollen mills, a tannery and implement factory. Population about 1,000.

At the last session of parliament the sum of $7,000 was appropriated for repairs at this place, and on July 7, authority was given to expend the amount by day labour.

Work was commenced on August 1, and continued up till November 5 when work closed down for the winter, recommencing on May 1 and finishing on June 19.

The work consisted in the construction of a crib 30 x 30 feet at extreme south end of breakwater ; the rebuilding of 250 feet of cribwork, 15 feet wide, at north end of breakwater, and the construction of 525 feet of sheet piling.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$ 1,075 25
Materials	5,924 75
	$ 7,000 00

OAKVILLE.

Oakville, a small town of about 500 inhabitants, is situated on the north shore of Lake Ontario, twelve miles west of Toronto, in the County of Halton.

Authority was given on September 15 last, to expend $850 for the construction of a small crib, 40 x 20 x 8 feet and approach between east pier and shore at this place.

Work was commenced on October 14, and closed down for the winter on December 31, recommencing on June 19 and was completed on June 26.

Total expenditure for fiscal year 1904-05, $781.48.

OLIPHANT.

Oliphant is a district, or post office centre, on Lake Huron, in the County of Bruce, on the south end of what is known as the 'Bruce Peninsula' and is eight miles distant from Wiarton. It is the principal point of communication between the main land and the adjacent 'fishing islands.'

At the last session of parliament, the sum of $1,000 was appropriated for the construction of a wharf at this place, and on September 10, 1904, instructions were given to proceed with this work by day labour. Materials were secured and work commenced on November 14, 1904, and continued until completion on June 28, 1905.

The length of wharf constructed is 600 feet, the first 540 feet from shore being built of dry masonry 10 feet wide, with a top coating of gravel and runs from 1 to 6 feet deep, with an average height of 2 feet above ordinary high water mark. The outer end consists of cribwork, filled with stone ballast and decked with 2-inch plank. The inner portion of cribwork is 40 feet long by 12 feet wide and the outer end forms a 'T,' 20 feet square.

The total expenditure for the fiscal year 1904-05:

Labour and superintendence	$893 12
Materials, timber, iron, stone, &c	83 06
	$976 18

OSHAWA.

Oshawa is a town of some size situated on the north shore of Lake Ontario, in the County of Ontario, on the main line of the Grand Trunk Railway, thirty-four miles east of Toronto.

Authority was given on September 10, to expend the sum of $700 in repairs to sheds at this place.

Work was commenced on May 10 and was completed June 24.

Total expenditure for fiscal year 1904-05 :—

Labour and superintendence	$198 85
Materials	501 15
	$700 00

OWEN SOUND.

Owen Sound is situated at the mouth of the Sydenham river, which flows into the head of Owen Sound, an arm of the Georgian bay, in the County of Simcoe.

The town is the centre of an extensive agricultural district, and is the terminus of the Grand Trunk railway branch of the Georgian Bay and Lake Erie division, also the Canadian Pacific railway, Toronto, Grey and Bruce division. There are several lines of steamers running to and from Owen Sound. Population, 9,500.

At the last session of parliament, the sum of $25,400 was appropriated for dredging and pile protection work at this place.

Authority for dredging was given on May 11, and authority to expend $2,000 for extra anchor piles on west side of harbour, on September 10.

Dredging commenced July 1, and closed for season on December 10, recommencing May 18, and continuing to June 28. The dredge worked 1,969½ hours, removing 180,525 cubic yards of material.

Eighty extra anchor piles were placed in position behind new pile work on west side of the harbour at a cost of $19.50 each, amounting to $1,560.

Total expenditure for fiscal year 1904-05, $33,591.08.

PARRY SOUND.

Parry Sound is situated on the east shore of Georgian bay, in the District of Parry Sound, population, 1,000.

At the last session of parliament, the sum of $8,000 was appropriated for the construction of a wharf at this place.

A contract was let to Mr. Angus A. McDonald on April 17, for the sum of $8,925, for the construction of the wharf.

Work was commenced on April 4, 1905, and is still in progress.

No payments have yet been made on account of this work.

Total expenditure for fiscal year 1904-05, $227.70.

PEMBROKE.

Pembroke, in the north riding of the County of Renfrew, is on the south shore of Allumette lake, which is a part of the Ottawa river. It is an important station on the Canadian Pacific railway and of the Grand Trunk railway, 104 miles west of Ottawa. A steamer runs daily from Pembroke to Des Joachims, a distance of 45 miles. Population, 9,000.

On February 19, 1904, a contract was entered into with the W. J. Poupore Company, for the construction of a wharf opposite the town, at the foot of Albert street.

The structure consists of pile bents, 20 feet wide on a length of 1,342 feet, forming the approach, and a landing head of a total length of 550 feet, 50 feet wide, also of pile bents, with the outer face in 8 feet of water at low water level. The outer face of the part which is 50 feet wide is built with close sheet piles, the top of the wharf is 8 feet above low water level, except at the point where it crosses the Canadian Pacific railway trestle work, where it is 6 feet higher, with slopes both ways from that point. There are five landing slips at the outer end, and a combined freight shed and waiting room was built on the head of the wharf.

The work was commenced in the month of August, 1904, and completed in June, 1905.

The amount expended was $43,105.50.

PENETANGUISHENE.

Penetanguishene, in the County of Simcoe, is situated on the north-western peninsula in Georgian bay, formed between Nottawasaga bay and the water of the Severn river, 40 miles north-west of the town of Barrie.

It is the terminus of a branch of the Grand Trunk railway, and a large quantity of lumber is shipped thence from the north and east shores of the Georgian bay.

At the last session of parliament, the sum of $22,000 was appropriated for dredging at this place, and authority was given May 14 to continue with the work which commenced on July 1, and ceased for the season on November 26, commencing again on May 8, and finishing on June 28. The dredge worked 1,738 hours removing 96,684 cubic yards.

Authority was given on December 13, to expend the sum of $1,200 in repairs to lighthouse pier, and work commenced on January 23, and was completed on May 13.

Total expenditure for fiscal year 1904-05, $12,743.52.

PETEWAWA.

Petewawa, in the County of North Renfrew, is on the south shore of the Ottawa river, near the mouth of the Petewawa river, 9 miles west of the town of Pembroke; it is a station on the Canadian Pacific railway. Population about 150.

The place had been chosen for the establishment of the permanent military camp, for which it is admirably adapted.

During the session of parliament of 1904, the sum of $6,000 was voted for the construction of a wharf, one-half of a mile below the mouth of the Petewawa river, to facilitate the landing of freight and passengers from the daily line steamer from Pembroke.

On December 26, 1904, a contract was entered into with Messrs. Lemoine and Fortin, of Pembroke, for the construction of the wharf. Work was commenced in February and completed in April, 1905.

The wharf has a total length of 450 feet, 20 feet wide for a length of 420 feet, the head is 125 feet wide; the outer mooring face stands in 8 feet of water at extreme low water. The wharf is built of pile bents, placed 15 feet apart in the approach and 12 feet 6 inches centre to centre in the head, driven 12 to 18 feet in the sand bottom. The piles are capped with 12 by 12-inch timbers on which 12 by 12-inch stringers are placed, 4 feet centre to centre, the top covering consists of 3-inch planks.

An opening 40 feet wide was left in the approach for the passage of logs, under the flooring of the wharf, this opening is spanned by a bridge.

The total cost of the work was $5,995.87.

PIKE CREEK.

Pike Creek is a village in the County of Essex, situated on branch line of the Grand Trunk railway, on the south shore of Lake St. Clair, 10 miles east of the town of Windsor. Population about 200. The principal industry is farming, although considerable fishing is done at the creek.

At the last session of parliament, the sum of $3,150 was appropriated for improvements at mouth of creek, and on October 18, 1904, authority was given to proceed with the work by day labour.

The work was commenced on November 1, 1904, and consisted in the construction of 95 feet of cribwork protection, and 64 feet of pile protection work on the westerly entrance to the creek ; also 250 feet of crib and pile protection work on the easterly side of entrance.

The construction of the above work now renders Pike creek available as a harbour of refuge, for smaller craft, and what is more important, keeps this outlet open to the lake, and thus prevents considerable damage being done, during freshets, to the country to the south which is drained by this creek.

The total expenditure during the fiscal year 1904-05:

Labour and superintendence	$ 1,515 48
Materials, timber, iron, &c.	1,633 95
	$3,149 43

POINT AUX BARIL.

Point aux Baril is a summer resort and fishing station among the islands of Georgian bay, thirty-eight miles north-west of Parry Sound. Steamers call tri-weekly at this place.

At the last session of parliament, the sum of $3,000 was appropriated for improvements to the steamer channel between Parry Sound and Killarney, and authority was given on July 22, 1904, to expend the appropriation.

Work was started on August 1 and was completed September 29 and consisted in the blasting out and removal of the shoal at Devil's Elbow, which was 137 feet long, with an average width of 36 feet and averaged 5½ feet of rock removed.

Total expenditure for fiscal year 1904-05, $3,729.54.

PORT ARTHUR.

Port Arthur is situated on Thunder bay, Lake Superior, in Thunder Bay district. It is the terminal of the Canadian Northern railway. Population, about 2,000.

At the last session of parliament, the sum of $5,000 was appropriated for repairs to breakwater at this place, and authority was given on July 1, to expend the amount.

Work commenced on July 7, and was completed on September 2, and consisted in repairs to north-east end of breakwater.

Total expenditure for fiscal year 1904-05:

Labour and superintendence	$ 709 13
Materials	4,279 23
	$4,988 36

PORT BRUCE.

Port Bruce is situated at the mouth of Catfish creek, in the County of Elgin, about five miles south of Aylmer. Population about 100.

The principal industry is fishing, in pursuance of which it ranks as an important point; between $15,000 and $20,000 worth of fish is taken annually from this port.

At the last session of parliament the sum of $1,000 was appropriated for the construction of superstructure at the east pier, and on August 6 orders were issued to proceed with the work by day labour.

Some 236 feet of superstructure was rebuilt.

The total expenditure during the fiscal year 1904-05, being as follows :—

Labour and superintendence	$ 315 00
Materials, timber, iron, &c	660 54
	$ 975 54

PORT BURWELL.

Port Burwell is a harbour of refuge, situated on the north shore of Lake Erie, in the County of Elgin, about twenty-one miles east of Port Stanley and fourteen miles south of Tilsonburg. It is the terminus of the Tilsonburg, Lake Erie and Pacific Railway Company. Population about 500.

On June 8, 1905, the dredging of channel between piers and at the entrance to the harbour was started by the Dominion Dredging Company, and up to June 30, 1905, 18,990 cubic yards of quicksand were excavated.

The expenditure during the last fiscal year amounted to $30,576.74, including the cost of extension to the breakwater.

PORT COLBORNE.

Port Colborne is situated on the north shore of Lake Erie, in the County of Welland, about twenty miles west of the City of Buffalo. It is the terminus on Lake Erie, of the Welland canal, and as such is a point of great importance in connection with the transportation of grain and other freight from the west to the St. Lawrence ports.

With a view of utilizing the Welland canal to a greater extent, the government of Canada decided in 1901 to improve the harbour of Port Colborne, in such a way

that it might be available as a transfer point for all kind of freight, from the largest vessels plying on the great lakes to canal-size steamers, and for this purpose the Department of Railways and Canals has been entrusted with the construction of docks, elevators and other terminal facilities, while the Department of Public Works has undertaken the construction of two breakwaters required for the protection against storms of the commercial docks.

The first or western breakwater was practically completed in June, 1904. Its total length being 4,424 feet; the outer 2,400 feet being 50 feet in width, and the remainder 25 feet in width, the height of the break being 11 feet above low water. The structure was built of timber cribwork, but the whole of the covering is concrete 1½ feet in thickness. At the outer end a block 100 feet long by 60 feet wide and 13 feet above low water, carries a concrete lighthouse, built by the Department of Marine and Fisheries. Along the south or exposed face, is deposited a stone embankment reaching to a height of 1 foot above low water.

During the fiscal year 1904-05, 3,000 cubic yards of large stone was added to this embankment, at a cost of $9,000.

A further addition of 12,000 cubic yards of large quarried stone is required to complete this embankment and form, on the south side of the breakwater, the slope required to protect the structure against ice and westerly storms.

The second or eastern breakwater is located to the east of the entrance to the harbour and canal; the gap between the two breakwaters being 600 feet. This eastern breakwater will, when completed, afford effectual protection to the commercial docks, against easterly storms.

The structure is 2,400 feet in length and 35 feet in width; the understructure to within one foot of low water mark being of timber cribwork while the superstructure to a height of 11 feet above low water mark is of concrete cribwork, well filled with stone ballast.

The contract for this second breakwater was awarded to Mr. M. J. Hogan, on June 8, 1904, for the sum of $179,000 and work was commenced early during the fiscal year 1904-05.

On June 30, 1905, twenty cribs each 100 feet in length and 35 feet in width had been sunk in position, were fully ballasted with stone, and ready to receive the concrete superstructure. At that date, the superstructure had been commenced, about 10,000 cubic yards being completed.

The payments made to the contractor, in connection with the construction of this breakwater, during the fiscal year amount to $121,187.28.

Considering the very exposed position of the structure the progress made by the contractor has been entirely satisfactory.

PORT DOVER.

Port Dover is situated on the north shore of Lake Erie, about 40 miles south-east of Woodstock, and about 50 miles west of Port Colborne. It is the terminus of the Georgian bay and Lake Erie division, and Port Dover and Hamilton division of the Grand Trunk railway. Population about 1,200.

At the last session of parliament, the sum of $10,000 was appropriated for harbour improvements and repairs to piers. Authority was given to proceed with this work by day labour, on September 13, 1904.

The work done during the fiscal year consisted in the renewal, from low water level, of 100 feet of the superstructure of the easterly pier; 857 feet of the superstructure of the westerly pier; and the decking of the remainder of the westerly pier.

The total expenditure during the fiscal year 1904-05 :—

Labour and superintendence	$2,476 28
Materials, timber, iron, stone, &c	6,714 23
	$9,190 51

PORT HOPE.

Port Hope is situated in the County of Durham on the north shore of Lake Ontario, 63 miles east of Toronto, on the Grand Trunk railway, and has a population of 4,188. Chief trade is in lumber and grain.

At the last session of parliament, the sum of $4,000 was appropriated for repairs to piers and dredging at this place, and authority was given on July 7, to expend the appropriation.

Work was commenced on July 1, and closed down for the winter on November 30, recommencing on April 10, and finishing on April 26.

The following repairs were made ; east pier, 600 feet in length, 16 feet in width. Centre pier, 145 feet in length and 12 feet in width. West breakwater, 375 feet in length and 20 feet in width.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$1,767 25
Materials	2,232 74
	$3,999 99

PORT MAITLAND.

Port Maitland is a harbour of refuge on the north shore of Lake Erie, at the mouth of the Grand river, 5 miles south of the town of Dunville, and about 15 miles west of Port Colborne. Considerable fishing is done at this point; it is also a summer resort. Population, about 100.

At the last session of parliament, the sum of $10,000 was appropriated for dredging at this point. Dredging was performed to a depth of 18 feet below low water level, during the months of July and August, by Mr. C. S. Boone, contractor, of Toronto, removing a bar at entrance to harbour; also removing a sunken wreck in harbour, which had been a menace to vessels entering this port.

Expenditure will be found in Chief Accountants Report under the name of 'Grand River'.

PORT STANLEY.

Port Stanley is an important harbour of refuge on the north shore of Lake Erie, at the mouth of Kettle creek, in the County of Elgin, 8½ miles, by rail south of the city of St. Thomas; it is the terminus of the Père Marquette railway, which brings in a large quantity of coal to this point from Conneaut, on the American side. Considerable fishing is done from this point and it is a favorite summer resort. Population, about 800.

At the last session of parliament, $50,000 was appropriated for improvements to the harbour. On October 14th, 1904, authority was given to expend the sum of $9,700 for repairs to the west pier, and the construction of close piling work, at inner end of harbour, all to be done by day labour.

On May 9, 1905, further authority was given to expend an additional $2,400, for close piling, making total expenditure authorized $12,100.

The work done consisted of the renewal, in timber, from low water level, of 380 feet of the superstructure of westerly pier, and the partial construction of 203 feet of close piling; as well as slight repairs to different portions of piers.

During the months of October and November, 1904, dredging was performed in the channel, between piers, by C. S. Boone, of Toronto, at the rate of $12 per hour. The total number of hours worked being 534, during which time 33,424 cubic yards of clay and sand were removed, at a cost of $6,586.80.

On April 10, 1905, dredging was resumed by Mr. C. S. Boone, with the agreement of payment by scow measurement, and up to June 30, 1905, 89,476 cubic yards were excavated, at a cost of $15,450.01.

Dredging was still in progress at the end of the fiscal year. Work done consisted in the dredging of the inner harbour and of the channel between government piers, so as to facilitate the entrance of the larger craft into this harbour ; also, to render available for use the entire frontage of the piers built.

A small amount of dredging was also done at the entrance to Père Marquette Railway Company's slip.

Survey and plans were made for the construction of two breakwaters, each 500 feet long, at the outer entrance to piers, and tenders were called for.

The expenditure for the fiscal year 1904-05 was as follows:

Construction	$ 9,657 93
Dredging	8,609 20
	$18,267 13

RICHARD'S LANDING.

Richard's Landing is a small village on the north shore of St. Joseph' island, in Georgian bay. It is distant nine miles by water from Desbarats, the nearest railway point.

Authority was given on September 29 last to expend $100 in minor repairs to the wharf at this place.

Work was commenced on September 29 and completed on November 26.

Total expenditure for fiscal year 1904-05:

Labour and superintendence	$ 55 20
Materials	44 71
	$ 99 91

RONDEAU.

Rondeau is situated in the County of Kent, at Pointe aux Pins, on the north shore of Lake Erie, about 140 miles west of Port Colborne. It is an important harbour of refuge on this side of the lake. The beach at Rondeau has become a favourite summer resort. It is the terminus of the Père Marquette railway, which have established a dock for lake ferry to deliver coal brought in cars from Conneaut, Ohio.

At the last session of parliament the sum of $25,000 was appropriated for the construction of breakwaters at entrance to the harbour and $5,000 for improvements to piers. The latter to be performed by day labour.

In regard to breakwaters, plans and specifications were prepared and tenders called for.

On July 7, 1904, instructions were issued to proceed with the work on piers which consisted of adding an additional 2 feet to 307 feet of the inner end of west pier to raise it to the same level as the remainder of this pier; also, the extreme inner end of this westerly pier, which had sunk about 4 feet was built up to former height, new snubbing posts were erected along this inner end, and twelve white oak spring piles were driven as a protection against the heavy coal boats coming in at this place. Some 500 running feet of white oak sheet-piling, 8 inches thick and 20 feet long, were driven at the westerly side of the west pier, starting at north or inner end. This piling was driven to prevent the sand from sifting through the pier and forming bars in the channel.

In June, 1905, a contract was let for the dredging of the inner harbour to 23 feet below low water level, and instructions were given to proceed with the work on June 19. On June 30, 1905, 11,750 cubic yards of clay and sand were excavated at a cost of $1,910.

The total expenditure during the fiscal year 1904-05, amounted to $14,716.75, including $5,134.59 for dredging.

ST. JOSEPH.

St. Joseph is situated on the east side of Lake Huron, about 14 miles south of Goderich. Population about 100.

During the session of parliament of 1902, the sum of $5,000 was appropriated towards building a wharf, by day labour, at this place.

Up to December, 1902, the wharf and approach were partly constructed, when the grant was expended. In 1903, contract was let to Mr. J. A. Cory, Ottawa, for the completion of the wharf, for the sum of $3,950.50. Since this contract was let work has been proceeded with in a desultory manner, and up to the end of the fiscal year 1904-05, was only two-thirds completed.

The expenditure on this work during the fiscal year 1904-05, was $275.

SARNIA.

Sarnia is situated on the east bank of the St. Clair river about 3 miles from Lake Huron, in the County of Lambton, and is 59 miles from London, by rail. There are two lines of the Grand Trunk railway and one of the Père Marquette railway entering the town. Population, about 8,000.

It is a port of call for a number of lines of steamers and an important shipping point.

Authority was given on October 14, 1904, to expend the sum of $1,200 for dredging at the Sarnia Saw Mills Company's works. Work was commenced on October 20, and completed on October 29, 1904, at a cost of $1,170, including inspector's wages.

On May 18, 1905, authority was given to proceed with dredging at this place, the work to be done under contract with The Sarnia Bay Lumber, Timber and Salt Company.

From June 19 to 29, 1905, inclusively, dredging was performed in front of the Père Marquette railway dock, to a depth of 21 feet to give sufficient water for boats to unload rails at this dock. In the performance of this work 9,520 cubic yards of clay was removed, at a cost of $1,648.40, including inspector's wages.

The total expenditure at this point during the fiscal year 1904-05, amounted to $2,818.40.

SAUGEEN RIVER.

Saugeen river empties into Lake Huron, at a point about 32 miles from Walkerton and 43 miles from Sarnia, and on this river is situated the thriving town of Southampton. Considerable traffic is carried on from the docks at this point, it is also an important fishing point.

At the last session of parliament, the sum of $10,000 was appropriated for improvements at mouth of river.

On September 10, 1904, authority was given for the expenditure of $4,000 for construction by day labour of sheet piling, &c., on southerly side of harbour. Work was commenced on October 1, 1904, on May 9, 1905, further authority was given for the expenditure of $2,500 to complete sheet piling, referred to above.

The work done consisted of the construction of 373 running feet of close piling, on the south side of the harbour; also the renewal of 120 feet of the superstructure of cribwork, 24 feet wide, on same side of harbour, and the filling behind the whole of this work.

This work was not completed on June 30, 1905.

On June 1, 1905, dredging operations were commenced by Mr. A. F. Bowman, and up to the 30th of the same month, 25,880 cubic yards of material had been excavated in dredging in the inner harbour and in the channel at entrance to harbour to a depth of 18 feet below low water level.

The total expenditure during the fiscal year 1904-05, amounted to $6,407.18.

SAULT STE. MARIE.

Sault Ste. Marie is situated at the head of St. Mary's river, which connects Lake Superior with Lake Huron.

At the last session of parliament, the sum of $24,000 was appropriated for harbour improvements and dredging at this place.

A contract was let to Mr. Joseph Battle, Thorold, on April 12, for the construction of an extension, 300 feet long and 60 feet wide, with an 'L' 250 feet long and 50 feet wide, for the sum of $65,000, to the government wharf at this place.

The work was constructed of cribwork up to low water level with concrete superstructure, and was commenced on April 12, and completed on November 15.

Authority was given on May 4, 1905, to expend the sum of $300 for removal of boulders near wharf. Six days work was performed at a cost of $240.

Total expenditure for fiscal year 1904-05, $61,710.45, including $7,000 paid to W. H. Plummer.

SEVERN RIVER.

Severn River runs north-westerly from the head of Lake Couchiching to Georgian bay, and forms the outlet of the Trent Valley canal system to the north.

At the last session of parliament, the sum of $2,000 was appropriated for improvements at this place, and authority was given September 10, to expend the appropriation.

This work was divided into two parts, $1,500 being allowed for widening the river and putting in a new stopping dam at Washago, and $500 for the removal of rock and boulders in the river, in the township of Rama.

Work was started at Washago on November 21, and finished February 25, 1905, and work started at Rama township on November 15, and was completed on December 21.

An additional $500 was granted on May 5, to continue work in township of Rama, but owing to high water no expenditure has yet been made.

Total expenditure for fiscal year, 1904-05 :

Labour and superintendence (Washago)	$1,154 66
Labour and superintendence (Rama)	450 39
Materials (Washago)	344 47
Materials (Rama)	29 75
	$1,979 27

SEVERN RIVER.

(McDonald's Chute.)

At the last session of parliament, the sum of $3,400 was appropriated for removal of obstructions at McDonald's Chute on the Severn river, and authority was given on September 10 to expend the apropriation.

Work was commenced on October 14 and completed on February 28, 1905.

Total expenditure for fiscal year, 1904-05 :

Labour and superintendence	$2,303 84
Materials	1,096 61
	$3,400 45

SHREWSRURY.

Shrewsbury is a small village on the north shore of Rondeau bay, in the County of Kent, 20 miles south-east of Chateau, and 5 miles south of Blenheim; it is the centre of a farming district.

At the last session of parliament, the sum of $3,300 was appropriated for the construction of a wharf at this place, and on September 10, 1904, instructions were issued to proceed with the work, which was completed on June 10, 1905.

The work done consisted of the construction of a pile wharf 296 feet long including the 'L' at outer end, which is 32 feet square, the remainder of the wharf being 16 feet wide. The approach is 32 feet long and 16 feet wide, and is composed of earth and gravel with 3-inch plank on sides, supported by piles.

The total expenditure during the fiscal year 1904-05, was as follows :

Labour and superintendence	$ 875 99
Materials, timber, iron, &c	2,182 80
Total	$ 3,058 79

SOUTHAMPTON.

Southampton is an incorporated town, situated at the mouth of the Saugeen river, on the east shore of Lake Huron, in the County of Bruce, 32 miles from Walkerton, the county town; it is the terminus of a branch of the Grand Trunk railway.

Has three furniture factories and does a progressive business in lumber, ties, posts and fishing, besides being a summer resort of note.

On December 5, 1904, the sum of $600 was authorized to be expended on urgent repairs to the breakwater at Chantry island. The work consisted of sheathing 240 feet of the face of the breakwater; re-enforcing the corners with sheathing and iron bonds; patching face work and renewing a considerable portion of decking.

This work was commenced on March 27, and was completed by May 17, 1905.

The total expenditure at this point during the fiscal year 1904-05, was :

Labour and superintendence	$ 226 79
Materials, timber, iron, &c	373 06
	$ 599 85

STOKES BAY.

Stokes Bay, a village of 150 inhabitants, is situated on the east shore of Lake Huron, in the township of Eastnor, County of Grey, and is distant 42 miles northwest of Wiarton, the nearest railway point.

At the last session of parliament, the sum of $7,500 was appropriated for a wharf at this place, and authority was given on August 16, to prepare plans and specifications.

A contract was let to Messrs, Kastner and Porter, of Wiarton, for $8,500 on November 28, 1904.

The contract was completed and final estimate given on April 29, 1905.

Total expenditure for fiscal year 1904-05, $7,478.61.

TENBY BAY.

Tenby Bay is a farming settlement on the south shore of St. Joseph's island, Lake Huron.

At the last session of parliament, the sum of $500 was appropriated for the construction of a wharf, 245 feet in length, composed of stone approach 145 feet by 18 feet and pile wharf 100 feet in length, with block end 35 by 50 feet ; authority was

given on September 10 to expend the amount by day labour. Work commenced on October 25, and was finished on November 17, 1904.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$637 32
Materials	74 36
	$711 68

THESSALON.

Thessalon is situated on the north side of the north channel of Lake Huron, in the District of Algoma, fifty miles east of Sault Ste. Marie. Considerable lumber is shipped from this place.

At the last session of parliament, the sum of $17,500 was appropriated for the construction of a breakwater.

The work consists of a breakwater 420 feet in length with an 'L' end of 8 feet made up as follows :

Stone approach 80 feet cribwork 340 feet long 20 feet wide, and an 'L' end of 80 feet, 25 feet wide.

A contract was let on July 14, to Messrs. O'Boyle Bros., for the sum of $12,000, work was commenced on August 20 and is still in progress.

Total expenditure for fiscal year 1904-05, $18,026.87.

THORAH ISLAND.

Thorah island is situated in Lake Simcoe, three miles from Beaverton, the nearest railway point.

At the last session of parliament, the sum of $660 was appropriated for harbour improvements at this place, and authority was given on September 10 and 26, to expend this amount by day labour.

The work consists in the construction of two rows of pile work, one on the north side 30 feet long, and one on the south side, 40 feet long, of the dredged channel.

Work commenced on February 17, and stopped March 31.

Total expenditure for fiscal year 1904-05 :

Labour and superintendence	$198 00
Materials	196 42
	$394 42

THORNBURY.

Thornbury, an incorporated village in Grey county is situated at the mouth of the Beaver river, which empties into Georgian bay, and is on the Meaford branch of the Grand Trunk railway, eight miles from Meaford and nineteen miles from Collingwood. Population, 1,000.

At the last session of parliament, the sum of $1,500 was appropriated for repairs at this place, and authority was given July 22 to expend the amount by day labour.

Work was commenced on September 10, and was completed June 6; it consisted in rebuilding the outer end of main piers, 100 x 35 feet, also building a new superstructure on inner breakwater 70 x 12 x 8 feet.

Total expenditure for fiscal year 1904-05, $1,500.08.

TORONTO.

Toronto harbour is situated on the north shore of Lake Ontario, and is formed by a circular bay 1½ miles in diameter, separated from the lake by a large island

(formerly a peninsula) about 6 miles long, making a safe and well-sheltered harbour capable of containing a large number of vessels.

At the last session of parliament, the sum of $28,000 was appropriated for work at eastern channel, and $40,000 for extension of island breakwater. Authority was given on July 7, to expend the $28,000; work commenced on July 1, was continued till June 30, and consisted in rebuilding 1,000 feet of superstructure of east pier northwards from lighthouse, 30 feet in width and 5 feet in height.

A small amount of dredging was done in removing a small shoal, 4,615 cubic yards of material.

Repairs were made to the stone talus protecting the breakwater for a distance of 700 feet.

Plan and specifications were prepared and tenders were called for extension to breakwater, but up to June 30, the work had not been let.

Total expenditure for fiscal year 1904-05, $29,831.03.

TREADWELL.

Treadwell is a post village in Prescott county, on the south shore of the River Ottawa, 4 miles north of Plantagenet, on the Canadian Pacific railway, 41 miles east of Ottawa. Population about 225.

The old Cane and Brown wharfs, in this locality, private property, being in a very dilapidated condition and the proprietors reluctant to undertake the extensive repairs found necessary to accommodate the heavy traffic from Plantagenet and surrounding parishes, the government decided to build a new wharf in this locality. To this effect, Brown's wharf, including a 30 feet wide and 250 feet long right of way thereto, was bought and transferred to the Crown for the sum of $600.

The wharf head block, 33 feet wide and 116 feet long at top, will consist of a double row of close faced and stone filled cribs, 133 feet 6 inches long, 10 feet wide and 17 feet clear apart, standing one foot above low level, the outside face of outer crib being sunk in 9 feet 6 inches of water. On each row will rest a superstructure 10½ feet high with icebreaker of granolithic concrete mixed 1, 3, 5. The outer wall will have a width of 6 feet 1½ inch at bottom and 1 foot 9 inches at top, the outside face being inclined 1 in 12 and the inside face 1 in 3. The inner wall will be 5 feet and 1 foot 9 inches wide at bottom and top respectively and have faces inclined 1 in 12 and 1 in 5. The front wall will be reinforced every 10 feet by 1½-inch vertical iron bars with plates inserted in the concrete near the outer face. The top of said wall will be anchored with the bottom of rear wall by four 1½-inch iron bars 32 feet long. A double slip, each 10 feet wide and at elevations of 3½ and 7 feet from low water, will be made in the face. The 3-inch pine flooring will rest on a steel structure composed of 24, 20 and 18-inch I-beams with 8-inch I-connections distanced 3 feet 6 inches.

The approach, 123½ feet long, will be of stone 18 feet wide at top with sides riprapped and sloped 1 in 12.

During May and June, 1905, materials were procured and at the end of June, the roadway was about four-fifths completed. The expenditure during the year amounts to $5,074.76.

WENDOVER.

Wendover, in the County of Prescott, is situated on the south shore of River Ottawa, about eight miles from Plantagenet, on the Canadian Pacific railway. It contains three stores, two hotels and a telegraph office.

The construction of a wharf at this place was commenced by day labour in September, 1901. The structure consists of the following:—1. A stone embankment of a length of 160 feet from the shore, by a width of 18 feet at top, with sides sloping 1 in 1, and a height of 12 feet. 2. A trestle or pile approach of a length of 342 feet from former to head block, by a width of 18 feet for 294 feet, and a width of 60

feet for the remaining 48 feet adjacent to the head block. 3. A pilework head block, laid at an angle of 82 degrees and 30 minutes with the approach, and of a length of 71 feet by a width of 32 feet, with a close-faced cribwork icebreaker 37 x 24 feet at its upstream end.

The wharf at its outer face has a height of 30 feet, stands in 10 feet at low water and is 3 feet above high water level. There is a floor, 34 feet long by the width of the wharf adjacent to the icebreaker and 8 feet above water level, with a slip 38 feet long and 11 feet wide, sloping 1 in 5 . A storehouse and waiting-room, 20 x 36 feet, is erected on the approach near the eastern side of slip. Two clusters of piles, 30 each and well bolted together, are placed at equal distances between wharf and shore, to protect the approach against the ice.

The wharf, though not completed, was opened to traffic in June, 1902. Expenditure, 1901-02, $6,502.22.

During the fiscal year 1902-03, the sum of $3,083.17 was expended in building the pile icebreaker and one of the clusters of piles mentioned above, in bracing the pile approach and in raising the stone embankment.

The wharf was completed at the end of fiscal year 1903-04, the sum of $1,097.48 being expended. The bracing of the approach was reinforced, the top of the hill leading to the wharf lowered and the stone embankment finished.

In 1904-05, slight damages to the piles by the ice called for repairs amounting to $119.62.

PROVINCE OF MANITOBA.

ARNES WHARF.

The work of constructing a landing pier at Arnes has been proceeded with. The land required as an approach to the wharf was also obtained and surveyed. The wharf as built has answered a good purpose, and was well patronized. It consists of an approach composed of five pile bents, 15 feet centres and 165 feet of an external row of close-piling with intermediate piles within 5 feet centres, braced latterly with 4 x 10 timbers alternating with 1-inch round iron rod and brace piles every 10 feet, strengthened with two outside 6 x 10 waling pieces bolted with long 1-inch round iron screw bolts, extending from one side waling to the other, and the whole filled with stone. As reported when it occurred, an ice crack formed at the end of the pier, and when it suddenly closed, 30 feet of ice piled up on the end of the pier and shook it some, but did no great damage, as it had not been quite completed.

In order to obviate any further difficulty of the kind, it was decided to drive at the outer end a cluster of twenty-five piles, and bolt them together with 1-inch iron screw bolts. The amount expended in labour, stone, timber and iron, aggregated $5,463.22.

GIMLI PIER.

An extension of 100 feet has been built to the Gimli wharf, and laid out in the direction of Willow Point, at an angle of 38 degrees, 15 minutes, so as to create the necessary harbour of refuge. The work done consisted in a row of closely driven piles around the outside, with three intermediate piles every 5 feet braced latterly with two brace-piles every 10 feet, with 4 x 10 braces every alternate 10 feet, tied with 1½-inch iron rods extending from outside to outside of the work. The north side and end of this work was sheet-piled with 4-inch tamarack, well spiked on to the inner longitudinals and further solidified by 2¾ x 4-inch strap-iron placed on the outside of the sheet-piling, and drift bolted through with 1 x 1½-inch drift-bolts. The south side of the work was completed with one 10 x 12 lower,

and one 6 x 12 upper walings, bolted on to the inner longitudinal pieces, and further by the rods running through the wharf, and the whole filled in with loose stone.

This work has been greatly appreciated by those interested in navigation, as well as the inhabitants of Gimli. The ground about this pier is stony, particularly on the south side. Some inconvenience has been experienced by steamboat men this spring, on account of the low water, and therefore the appearance of a greater number of boulders than first observed or ever noticed at high water.

One or two steamboats had narrow escapes at this point during storms. The general opinion appears to be that some dredging, at all events the removal of the boulders alluded to, be done about this wharf, particularly within and around the wing, far enough out to enable steamboats to turn.

The expenditure during the last fiscal year amounted to $5,142.38.

LAKE FRANCIS OUTLET.

The dredge *Manitoba* and vessels operated during last season at the Lake Francis work. Dredging a channel about 60 feet in width, and 8 feet in depth, casting some of the material south of the cut, also filling behind as well as covering the sheet piling driven on the north side, to prevent the filling in of the dredged channel, around the north-west end and side of the north pier. A quantity of material was also dumped into deep water. When the rough weather did not permit work being done outside, the inside turning basin was increased in length, width and depth. The quantity dredged was 12,540 cubic yards.

Besides the dredging 300 feet of additional sheet piling was constructed at a cost of $3,735.93, making a total expenditure of $9,994.38 for the fiscal year just expired.

Generally speaking, the development of this harbour is nearing a successful completion, and is already in a condition to allow the largest steamboats on the lake to come in and out with safety, when properly handled.

A large volume of water flows through this canal, at a rate of velocity varying in extent with the prevailing winds. The only trouble experienced so far in maintaining a regular width and depth of channel, has been, firstly, sedimentary matter lodging at the inner end of the canal just at the entrance to the turning basin ; secondly, a bar forming outside the west end of the north pier, but the lengthening of that pier has partly overcome that difficulty, and it is thought that the further north pier extension of 200 feet shall entirely overcome the said difficulty.

SELKIRK WHARF.

The wharfage facilities were extended at Selkirk by building a pile wharf having a frontage of 252·6, and a rear end measurement of 268 feet; (as a protection against the ice shoves) or an average length of 260·2 feet, built in the same manner as the old wharf, excepting that the upper end has two rows of closely driven piles and sheet piled on the outside with two 8 x 10 waling pieces. The close-piling extends 50 feet 6 inches from the upper end, and from there on to the end, the piles are driven 2 feet 8 inches centres, sheet piled, on the outside with 4-inch tamarack planking, with two 8 x 10 waling pieces continued at the upper end. Life chains were also put around the ends and front of the wharf, the whole for 20 feet in width was filled with stone.

The total cost of the work done during the fiscal year just ended, was $8,876.44, an average cost per foot frontage is higher than the cost of the previous extension ; but this is accounted for by the fact that a separate wharf was built, therefore a greater number of piles were driven in order to resist the pressure of the ice at the upper end. The bracings were also of a more substantial nature, and the labour and material higher than the previous year. The reason why the old structure was not continued, as previously reported, is that the owners of adjacent property strongly objected to it, and in compliance with instructions received from the department it

was built opposite lots 12 to Dufferin avenue, inclusive. The cost also included some work of dredging done in front of the wharf. The total length of the old wharf aggregates 500 feet, the present addition 260·2 feet, which makes a total length of 720·2 feet frontage of available wharfage at Selkirk, which seems to serve a good purpose, if we may judge by the number of vessels that patronize the wharf, and the extent of freight shipped over it.

MANITOU RAPIDS, WINNIPEG RIVER.

The work of buoying the channel about Manitou rapids and Winnipeg river, was done, and maintained during the navigation season, but the work of removing obstructions to navigation about Manitou rapids was not proceeded with for want of plant to do the work.

NORTH-WEST TERRITORIES.

SASKATCHEWAN RIVER.

From repeated demands from towns on the shore of the Saskatchewan river, the department is about to make a cursory examination of the navigability of the river. The pressing need was more especially demonstrated by the City of Prince Albert. The government has here authorized an expenditure of $1,500 to defray expenses in removing the boulders and large rocks, which hindered navigation for light draught boats (2 to 4 feet draught) for a distance of 250 miles. Under the superintendence of competent captains the channel of the Saskatchewan was cleaned of boulders and rocks opposite the town site and as far above as two miles, forming a total distance of four and a half miles. This stretch was the only hindrance to ordinary navigation, as far as Battleford a distance of 215 miles. Four trips were made between Edmonton and Prince Albert during the summer months, and these could not have taken place without the above-mentioned improvements. Work was carried out during March, on the ice, and during June, at extremely low water.

The total expenditure during the last fiscal year amounted to $944.51.

BRITISH COLUMBIA.

ANDERSON AND KENNEDY LAKES.

The work on Anderson lake, on Barclay sound, is not what it should be, the timber used in cribwork being in most instances too small. A slide had carried away some 50 feet and formed a bar at bottom of cribwork. This will have to be removed and the cribwork repaired. Otherwise the work has made a great improvement and boats are now able to track up to the lake without difficulty.

The work at Kennedy lake, on Clayoquot sound, is very satisfactory, solid and well built. A little further extension, both up and down stream, will complete this work as far as it is desirable to proceed with it at present, and even now, access to the lake is a simple proposition.

The amount asked for 1905-06, of $2,500, should carry both works to completion as far as is justified by the present requirements.

The expenditure has been as follows :—

Anderson lake—		
Wages	$ 912 00	
Material	100 56	
Provisions	188 47	
Transportation	28 50	
		$ 1,231 53
Kennedy lake—		
Wages	$ 895 87	
Material	140 08	
Provisions	220 50	
		$ 1,256 50
Total		$ 2,488 03

CHILLIWACK.

This wharf is a somewhat more ambitious structure than either Langley or Mount Lehman to meet the much larger requirements of the locality. Chilliwack is at present the head of navigation on the Fraser river and has daily communication by steamer with New Westminster. The wharf and warehouse were built as a union terminus where both lines of steamers could receive and discharge their freight, which aggregates a considerable amount in the year. The wharf consists of the usual platform and ramp, but in addition there is a large warehouse 50 by 35 feet with a lean-to for teams to unload under shelter and a cattle slip. At the date of writing this structure had been completed under as additional grant of $1,000, but to the end of the fiscal year the expenditure was kept within the original grant, as follows :—

Wages	$ 581 33
Material	1,292 00
Tug hire	85 00
Inspection	41 30
Total	$ 1,999 63

COLUMBIA RIVER, ABOVE GOLDEN.

The work on this service is entirely in the interests of navigation and upon which our new tug boat *Muskrat*, completed in July, 1904, has been steadily engaged during the open season in cutting sweepers along bank; repairing dam at north end of Windermere lake ; clearing channel at Salmon beds, between lake and bridge at Athalmer; extending wing dams at various points; and clearing snags from the river near Golden; with the result that navigation is now maintained without difficulty by the different river steamers until the close of navigation, which hitherto was impossible during the season of low water.

The expenditure on this service has been as follows :—

Wages	$ 2,195 43
Provisions	427 47
Material	1,732 95
Fuel	27 00
Total	$ 4,382 85

COLUMBIA RIVER, BELOW GOLDEN.

The work on the Columbia river on this service, that is, between Donald and Beaver Mouth, a distance of 12 miles, is in the interests of the Columbia River Lumber Co., at whose request the appropriations have been granted. It comprises a wing dam, 4 miles above Beaver Mouth, to repair the one partially destroyed by high water in August last, for the purpose of preventing logs hanging upon the west side of the river. It is a heavy crib structure, securely bolted and filled with stone, covered with 3-inch plank, and heavily riprapped along face and back, and has successfully withstood the freshet of this year without apparent detriment.

The other work contemplated is some 2 miles below Donald, and consists of a pile fence across head of three channels, which cut across bend in river, to prevent saw logs entering these subsidiary channels and piling up on bar at lower end. The enormous number of logs thus stranded is a serious matter to the mill men and, in their interest, justifies considerable outlay to obviate. This work was interrupted by an unusually rapid rise in the river so that but little has been done further than getting out the piles and timber necessary for the structure, and building a new and larger scow for our pile driver. We are now pushing the work at the best and most favourable stage of water for our purpose.

The expenditure for the past year on this service has been as follows:

Wages	$ 1,830 42
Provisions	620 91
Material	1,806 14
Team hire	326 74
	$2,584 21

COLUMBIA RIVER AT REVELSTOKE.

For reasons fully explained in previous reports there was no work done on this service during the season of 1904. The system determined upon for the protection of the river banks at Revelstoke, was such a radical departure from the former methods, that work was delayed until the best possible data had been obtained. A thorough survey was made during the winter of 1904-05; from the data obtained it was decided, instead of attempting further protection by means of mattrassing, to endeavour to so divert the water, by means of a dam across the shallow river channel, and opening, by dredging, a new channel through the bar, as to prevent it impinging on the high friable bank, to the serious detriment of property and buildings in this part of the town of Revelstoke. There is every rason to think that our efforts will prove successful, while realizing fully the uncertainty and more or less experimental nature of river diversion.

There is no use in damming the river until such time as we have made a channel to induce the water to flow in the direction wanted, and to get the full benefit of the cutting force of the current, to lessen the amount of excavation required. The stripping of the surface of the bar was done by ordinary labour. The dredge *Nakusp* commenced the work of making the cut for the proposed diversion on May 20th, and continued, with fairly good success, until June 13th when, unfortunately, a serious accident tied her up for the balance of the fiscal year. The break consisted of the 'A' frame breaking loose at the foot of port leg and going overboard, carrying with it crane, depper, &c. The depper arm was broken, also both legs of 'A' frame, the casting at head of frame lost, and the turntable badly twisted. The cause of the accident was a defective weld in the strap holding leg of frame to deck. The delay in getting to work again was owing to the difficulty of getting timber for dipper arm, and in waiting for castings from Toronto. The work is now progressing as favourably and as expeditiously as the capacity of the dredge will admit. The piles, stone, &c., are all ready for the dam so soon as the time arrives for us to put it in. In the

meantime the entrance to cut is protected by some 200 feet of pile and crib protection in the lower side of mouth of cut.

The principal expenditure in connection with this work was in wages, for the large force of men engaged in stripping the bar of heavy stones and breaking up the indurated or cemented surface, so that the high water would have the greater effect; breaking down, by quarrying, some 2,000 cubic yards of broken rock, and getting out the piles; and was as follows:

Wages	$ 6,021 56
Provisions	283 79
Materials	2,079 18
Team hire	483 80
Towage	100 00
Survey	212 00
Fuel	87 50
Total	$9,267 83

COLUMBIA RIVER, ABOVE REVELSTOKE.

This work was closed down at the end of November last, the appropriation of $3,000 for this service having been expended. The length of river covered by our work of improvement extends from the head of Canyon eight miles above Revelstoke to Downie creek, some fifty miles, upon which much valuable work has been done in taking out boulders and blasting reefs at different points such as China bar, One Mile riffle, Seventeen Mile Riffle, Rocky point, and head of Canyon, to the material benefit of navigation and satisfaction of the captain of the *City of Revelstoke*, the only steamer running on this portion of the Columbia river.

I may add that this is about as bad a stretch of water as it is usual to navigate in any craft and is only safe under the most favourable circumstances with a reliable steamer in the hands of a thoroughly competent wheelsman, both of which the Revelstoke Navigation Company possess.

The work will be continued under a further small appropriation, as it is advisable to proceed cautiously, otherwise, in removing one difficulty we are liable to create increased difficulties at another point. The work is in the hands of a most competent and reliable foreman, Mr. J. M. Kellie, who has had charge since its commencement.

The expenditure has been as follows :—

Wages	$ 1,842 41
Provisions	466 57
Material	690 02
Total	$ 2,999 00

COLUMBIA RIVER, AT ARROWHEAD.

There was no work done at this point until March 1 last. The work consists of a wing dam 750 feet in length and 8 feet above low water level. It runs from left bank of river opposite head of Cottonwood island, diagonally down and across stream at a low angle to current. By contracting the channel it is anticipated the increased velocity will cut away the large and increasing body of silt, deposited during high water, to a sufficient extent to allow the passage of steamers at any stage of the water. The dam consists of two rows of piles driven 6 feet between rows and at 6 feet centres, filled with brush and rock, and faced with a waling of 3 x 10-inch plank, 10 inches apart, from low water mark to top of pile. There is no doubt but that this

structure will have the desired result, although it may be necessary to extend it to its originally intended length of 1,200 feet.

The expenditure has been :

Wages	$ 2,960 73
Material	1,377 51
Team-hire	231 00
Tug-hire	710 00
Hire of pile-driver	127 50
Contingencies	35 03
Total	$ 5,441 77

COLUMBIA RIVER, BETWEEN ARROW LAKES.

After the completion of the work at Beaton, in November, 1904, the dredge *Nakusp* was engaged, during January and part of February, in cutting a channel at Two Beacon bar, giving a good depth across the bar at any stage of water. For the balance of February and all of March the crew were engaged in repairing the old wing dam below Burton, some 200 feet of which was carried out during the summer of 1904. Some dredging was done at the landing at Fire Valley, upon the conclusion of which, and before moving to Revelstoke, the dredge was taken out of the water at Nakusp and thoroughly overhauled. Up to the end of November this dredge had moved some 19,000 cubic yards at Beaton, and subsequently at the Two Beacon bar some 16,000 cubic yards of material, and 1,200 cubic yards of rock was taken out by the crew and used in the extension of the dam at Burton.

The expenditure on this service has been as follows :—

Wages	$ 5,415 43
Provisions	2,089 60
Material	1,167 26
Fuel	526 26
Team-hire	189 00
Contingencies	97 94
Total	$ 9,485 49

COQUITLAM RIVER.

This work is in the interests of the lumbermen and consists in keeping the river clear of drift piles, stumps, logs and other obstructions brought down by the high water and left stranded on the different bars ; and in closing the shallow subsidiary channels or sloughs by strong floating booms securely moored to the shore. This work has been pretty thoroughly done and a material improvement effected with a limited expenditure, which has been as follows :—

Wages	$1,554 76
Material	819 96
Team hire	17 00
Total	$2,391 72

DUNCAN RIVER.

The usual work in connection with this service consists in cutting the brush and trees, commonly called sweepers, from the banks of the river and removing snags, &c.,

annually renewed in the river by the erosion of the banks during high water. A further appropriation of $2,000 has been asked for the next fiscal year, which I think should terminate this annual grant as there should be some finality to this expenditure.

The details of the expenditure are :—

Wages	$1,350 75
Provisions	307 35
Material	230 22
Boat hire	69 00
Total	$1,957 32

KOOTENAY RIVER.

This expenditure was spent in clearing the Kootenay River of snags from Kootenay landing, Kootenay lake, to Goat River landing, some fifteen miles, more for the benefit of the lumbermen than for navigation. The work was commenced on November 4, 1904, and completed on December 10 last.

The worst of the snags were removed by being shot to a depth of from 8 to 10 feet below surface and a very material improvement to navigation has thus been effected.

The expenditure was as follows :

Wages	$890 00
Provisions	269 93
Material	196 49
Transportation	33 75
Boat hire	69 00
Total	$1,459 17

LADYSMITH.

This wharf was erected as a local convenience, at the request of the town of Ladysmith, as a point of call for the small coasting steamers instead of the large coaling wharfs, which are not convenient nor suited for this class of service. The wharf is complete, with warehouse, and graded approach down a bluff some 40 feet in height. The work was commenced on October 15 and practically completed on December 15. Expenditure during last fiscal year, $3,976.98.

LANGLEY.

This wharf, in common with a number of others that have been applied for, is a good substantial structure. It has a platform 40 by 70 feet with a ramp or slip 15 feet wide by 90 feet long extending from lower end on a slope of 1 in 5 to extreme low water, giving facilities for shipment at any stage of the water. This leaves the platform clear and admits of a warehouse 15 by 30 feet placed at one end, without unduly contracting the space. This has been the general plan adopted in these small wharfs The only difference is in the length of approach from the shore to the main wharf or platform mentioned. In this case there has been serious erosion of the bank above the wharf site, in front of the town of Langley, to stop which an appropriation has been made in the estimates for 1905-06, when this work and some further protection to the wharf will be done.

The expenditure has been as follows :—

Wages	$ 663 25
Provisions	214 28
Material	1,061 24
Tug hire	30 00
Fuel	20 00
Total	$ 1,988 77

MOUNT LEHMAN.

This is a similar wharf to that described for Langley and was commenced on November 16, and completed on December 16 last, with the exception of a warehouse for which an additional sum has been secured and which will be built during 1905-06.

The expenditure has been as follows :—

Wages	$ 560 76
Provisions	96 96
Material	1,252 03
Tug hire	30 00
Fuel	37 10
Total	$ 1,976 85

NORTH THOMPSON RIVER.

This work consists of a dam across the east channel of river at Jemeson's, or Hefly's rapids and was commenced on December 14, 1904, and completed in the beginning of March, 1905. The object of the dam is practically to act as a coffer dam to dry the bed of the river below, by shutting off the water from the east channel, to admit of the hard reef of cemented gravel and boulders, having a fall of 8 feet in 50 feet, being removed and the fall distributed uniformly over a distance of some 400 feet, after which the dam will be removed. It has been found sufficiently tight to dry the river bed and the reef can be removed after high water. We are of the opinion that the removal of the reef will not only improve navigation at this point but also have the effect of diverting a considerable body of water from the west channel, and to a certain extent lessen the erosion of a gravel bank on the west side of the river.

The original design of driving a row of piles across stream, with a parallel row at 8 feet centres to brace from, was found impracticable as it was impossible to drive the piles to a sufficient depth to make them secure, so we were obliged to reinforce by a bracing of cribwork which has been found sufficient to stand the test of this year's high water, and will no doubt remain effective until the necessary excavation is completed below.

The expenditure has been as follows :—

Wages	$ 3,161 80
Provisions	1,150 89
Material	964 31
Team hire	1,135 02
Total	$ 6,412 02

SALMON RIVER.

As this work covers a stretch of 40 miles from the mouth of the river upwards, it was deemed advisable to place two conductors in charge. The work consisted in clearing sweepers from banks, making custoffs in the very sharp bends for the purpose of straightening the channel, clearing out drift piles and snags, and protecting banks from erosion at different points for the purpose of facilitating the driving of saw logs down the river in the interests of the Columbia River Lumber Company, of Golden, which hold extensive timber limits at the head-waters of the river. The object of the expenditure has been attained and the river is now fairly navigable for floating down logs, or the purpose intended. The work was commenced on October 18, 1904, and completed on December 17 following.

No further appropriation other than an emergency one of $1,000 to cover possible outstanding accounts and some slight further work that may be required, has been

asked for 1905-06, as the lumbermen should now be able to look after the work and prevent jams forming.

The expenditure for the past year has been as follows:

Wages	$ 3,733 14
Provisions	869 35
Material	265 50
Team hire	106 10
Contingencies	20 93
Total	$ 4,995 02

SYDNEY.

This structure succumbed to the severe storm of continuous sourth-easterly gales, during October 29 and 30, 1904. The structure was substantially built and pile braced, but the holding ground was bad and the stone filling was inadequate to give it the required stability to withstand the exceptionally heavy test of wind and waves. Nothing short of a sea-wall will stand in this exposed position, the expense it is not felt justified to recommend.

Expenditure during last fiscal year, $6,252.01.

SKEENA RIVER.

The works contemplated under this appropriation comprise: The improvement of the navigation of the Skeena river by the removal of obstructions in the shape of large boulders in the channel between Kitsilas canyon and Hazelton—a distance of 80 miles; some work of the same description in the North Skeena pass in the channel taken by the coasting steamers running North to Port Simpson from Port Essington at the mouth of the Skeena; and the removal of snags between the mouth of the river and the head of tide water—or that portion covered by the fishing fleet during the fishing season—in the interests of the fishermen and the various canneries, some 13 in number, engaged in this industry on this river.

As the improvement to the navigation of the river is in a fairly complete state—from the work already done—with the exception of the North Skeena pass, it was thought desirable to confine our attention this year almost exclusively to snagging, clearing the different reaches of the river as effectively as our imperfect appliances would permit. These snags are renewed to a greater or less extent every year by the annual freshet, and, in common with those on the Fraser river, require constant attention during and before the fishing season. The chief loss to the nets occurs in the deeper reaches, or from Aberdeen to the mouth of the North Skeena pass, in which, while able to cope with the shallower reaches, our small snag scow is inadequate to the purpose, and it is here, as stated, that the greatest loss in nets occurs.

In former reports considerable stress was laid on the necessity for a more effective snag boat for this service. A boat somewhat similar to, but smaller than our snag boat *Samson* on the Fraser river, is what is required, at a cost of some $25.000 if built in New Westminster.

The expenditure on the above service has been :

Wages	$ 2,844 99
Provisions	1,261 79
Material	777 66
Fuel	520 00
Total	$ 5,404 44

SPALLUMCHEEN RIVER.

This work consists of an extension 150 feet upstream and 250 feet down stream, of the work of last year. It is a pile protection in front of the property of the Columbia Flouring Mills Company, at Enderby, and is of a substantial nature. The piles are driven at low water mark, tied to bank piles, and faced with 2 x 8-inch planks laid 4 inches apart, partially filled with brush and stone to prevent scour. The balance of the filling is to be made from edgings, &c., and other refuse, bringing it up to the level of the bank and proving an efficient protection from further erosion. The work was commenced on November 10 last and completed by the end of December. An inspection made in February showed that the instructions had been carefully followed, and the work done in a particularly satisfactory manner.

The expenditure was as follows :—

Wages	$ 835 00
Material	819 22
Team-hire	273 00
Total	$ 1,927 22

THETIS AND KUPER ISLAND.

This work was for the purpose of cutting a boat channel through from Claim Bay, on the east, to Telegraph Harbour, on the west of a low-lying sandy neck connecting these two islands. The distance across on our line of cut was some 3,000 feet. The size of channel intended to be made was 30 feet by 5 feet at low tide, but it was found impossible to continue this depth, owing to encountering sand-stone rock and hard-pan for some 500 feet at west end of cut at low water mark, requiring blasting before removal was possible. We succeeded in getting a channel through, although not navigable at low tide. A short wait will enable fishing boats and canoes to pass through without difficulty. We had to charter a dredge for this purpose as our own were engaged on more important works. Operations were commenced on April 1 and completed by the end of the fiscal year, June 30.

The expenditure was as follows :—

Wages	$ 2,235 71
Provisions	625 13
Material	630 16
Dredge-hire	1,050 00
Tug-hire	302 50
Fuel	165 25
Water	35 00
Contingencies	31 80
Total	$ 5,075 55

DREDGING OPERATIONS.

During the fiscal year 1904-05, dredging was done at the following places :

PROVINCE OF NOVA SCOTIA.

Barrington Passage, Shelburne county.
Cheticamp, Inverness county.
Liverpool, Queen's county.
Lockeport, Shelburne county.
Mabou, Inverness county.
Pictou, Pictou county.
Shelburne Harbour, Shelburne county.
Sydney, Cape Breton county.
Yarmouth, Yarmouth county.

PROVINCE OF PRINCE EDWARD ISLAND.

Georgetown, King's county.
Montague River, King's county.
Morrell River, King's county.
Woods Islands, Queen's county.

PROVINCE OF NEW BRUNSWICK.

Campbellton, Restigouche county.
Dalhousie, Restigouche county.
Maguapit and French lake.
Pointe du Chêne, Westmoreland county.
Shippegan gully, Gloucester county.
St. John harbour, St. John county.
St. John river, Heustis wharf.
Washademoak river.
Ackerly wharf.
Cambridge wharf.
Robertson wharf.
Webster wharf.
Westfield, King's county.

PROVINCE OF QUEBEC.

Berthier (en bas), Barbotte river, Belœil, Blanche shoals, Beauharnois channel, Batiscan, Calumet, Chateauguay basin, Charlemagne, Chambly, Chicoutimi, Como, Doucet's Landing, Graham, Grenville, Ile du Pas, Isle aux Noix, L'Assomption, Lacolle, Murray Bay, Notre Dame de Pierreville, Ottawa river, Pointe Platon, Pentecost, Quebec, Rivière Ouelle, Rigaud, River Jésus, Rivière du Loup, Roberval, St. Antoine, St. Denis, St. Charles, St. Aimé, St. Jean des Chaillons, St. Michel de Bellechasse, St. Andrews, St. Johns, St. Maurice, Sorel, Three Rivers, Terrebonne, Ville Marie, Yamaska.

PROVINCE OF ONTARIO.

Bronte, Cumberland, Collingwood, Cobourg, Goderich, Haileybury, Hamilton, Hawkesbury, Kamisnistiquia river, Kincardine, Kimpton, Midland, New Liskeard, Neebing river, Owen Sound, Penetanguishene, Pickering, Point Edward, Port Arthur, Port Bruce, Port Burwell, Port Stanley, Port Hope, Rondeau, Sarnia, Saugeen river, Trent river, Trenton, Waubaushene and Fesserton, Wolfe island, Whitby, Wiarton.

DREDGING OPERATIONS.

PROVINCE OF NOVA SCOTIA.

DREDGING AT BARRINGTON PASSAGE, SHELBURNE COUNTY.

Barrington Passage, a seaport town of Shelburne county, four miles west of Barrington head, and 165 miles south-west of Halifax. The population is engaged in fishing and farming.

There were no wharfs in this district having a depth of water at their outer ends, capable of floating vessels at low water, and the bottom is of such a nature, that it was not thought desirable to attempt dredging for the purpose. After an examination of the locality, it was decided to improve Sherrow's channel, a mile to the east of Robertson's wharf, and in 1888-89 the dredge 'Canada' was employed to improve the channel, removing 11,745 cubic yards.

In 1889-90, the work was continued by improving the channel from its mouth to where the present public wharf or pier now stands to a depth of 11 feet by dredging a basin to enable vessels to lie afloat at low water, when the further quantity of 8,464 cubic yards was removed.

In 1891-92, the wharf or pier being completed, the dredge 'St. Lawrence' improved the basin to a depth of 13 feet at low water, removing 4,375 cubic yards.

In 1897-98, the dredge 'Canada' removed 12,780 cubic yards further improving the channel; and again in 1898-99 removing 12,510 cubic yards.

In the fiscal year 1903-04, the dredge 'Canada' operated there, removing 19,440 cubic yards of mud, from September 1 to December 15, 1903, at a cost of 44.92 cents per cubic yard.

From July 8 to November 30, 1904, the work was continued by the 'Canada', removing 32,490 cubic yards, at a cost of 24.62 cents per cubic yard.

The total amount of dredging at Sherrows channel is 61,020 cubic yards, cost $17,612.09.

The 'Canada' worked at Barrington Passage from December 1 to 9, removing 1,890 cubic yards, at a cost of 25·59 cents per cubic yard.

DREDGING AT CHETICAMP, INVERNESS COUNTY.

Cheticamp is a port settlement in this county, on the Gulf of St. Lawrence, 58 miles north of Mabou. It has a church, school buildings, several stores, telegraph and express offices, and the district has a population of about 2,500.

The harbour between Cheticamp island and the main land is entered from the north-east through a dredged channel eighty feet wide, having fourteen feet at low water, between the Shingle spit on the north-east extremity of the island and Carven point. There is a depth of 21 feet within the harbour, but the sand bar (before being dredged), had only two feet over it at low water, and the greater part of it dry. There is good anchorage for the largest vessels inside. Numbers of fishing and other vessels run here for a harbour of refuge or shelter in stormy weather.

Keeping the range lights in view, while the channel is but eighty (80) feet wide, a vessel can run in safely. There are several wharfs and a government pier in the harbour, where vessels can land and take in cargo. A steamer carrying mails runs between Pictou and Cheticamp, touching at Arïsaig, Port Hood, Mabou and Margaree.

A large fishing business is done here, and the export of cattle, agricultural produce, fish and oil is very considerable.

The work of the department here was in reducing the bar, and it was commenced in 1875-76 by the old dredge 'Cape Breton,' and continued in several seasons since by the old 'Cape Breton,' 'Canada' and 'Geo. McKenzie'.

From July 1 to 8, 1904, the 'Geo. McKenzie' was employed here removing 1,250 cubic yards of sand and gravel, at a cost of 45·78 cents per cubic yard, and the dredge 'New Cape Breton' from July 1 to 26, 1904, was employed here removing 6,405 cubic yards of sand and gravel, at a cost of 28·46 cents per cubic yard.

The total amount of 206,275 cubic yards have been removed up to the present, costing $71,409.02.

DREDGING AT LIVERPOOL.

The town of Liverpool, at the head of Liverpool bay on the south-east coast of Nova Scotia, and the county town of Queen's, has a population of about 2,500. Milton, two miles farther up the river, where the sawmills are, has some 1,200.

In connection they carry on an extensive trade with Halifax, the United States and the West Indies. The exports are principally lumber, fish and farm produce. Ship-building is carried on to a small extent, and the port owns considerable tonnage. Steam planing mills, a foundry, carriage factories, a pulp mill and other industries are located here.

There are several hotels, churches, courthouse, jail, bank and stores, telegraph and express offices, and a very fine city hall, also a marine railway for hauling vessels of medium size.

Liverpool harbour is never frozen over, the bay runs in for a distance of 2½ miles between Eastern head and Moose point, 1¼ miles distant from each other. Spring tides rise 8 feet, neaps 5 feet. In proceeding up Liverpool bay, the services of a local pilot are necessary.

The dredge 'Canada' operated here from April 14 to 25, removing 1,260 cubic yards of mud from the channel at a cost of 44·61 cents per cubic yard.

The total amount of dredging performed at Liverpool is 82,230 cubic yards, cost $31,944.10.

DREDGING AT LOCKEPORT.

The 'Canada' worked here from June 8 to 30, removing 5,040 cubic yards, at a cost of 19·04 cents per cubic yard.

DREDGING AT MABOU.

Mabou river runs into the Gulf of St. Lawrence in a north westerly direction through the County of Inverness, and about six miles from Port Hood. From the entrance to the bridge, a distance of 3½ miles, this river resembles a mountain loch, being in one part three quarters of a mile wide. Besides the Mabou, the main branch, two smaller streams enter from the eastward.

The harbour is sometimes dangerous to enter, as the tides frequently flow at the rate of from four to six knots an hour; ordinary springs rise 4 feet; neaps 2 feet,

The entrance was formerly at the southern end of a sand bar, over which was but four feet of water, at low tide. From this bar, for about 400 yards the channel ran E.S.E., then turning north, followed the inner side of the sand hills for about the same distance, turned again sharply southeast for about 1,400 yards when it expended into a fine basin, some 2½ miles long, and ¼ to ½ mile wide.

After survey and consideration by the department, it was decided that this long and crooked channel should be closed, and a shorter, straighter one opened through the bar at the northern end.

In 1871 a contract was made for the purpose of this work, afterwards piers were built for the protection of the channel. The artificial channel requires frequent dredging to keep it clear. It is now being dredged to 16 feet. Extensive dredging has been done here at a large outlay of money.

The place, however, is a finely settled agricultural district. The shores of Mabou present flourishing farms on either side, and the scenery is beautiful. Seams of coal and plaster are found here and worked, the latter exported to considerable extent. Mabou Harbour, Mabou Mouth and Mabou N.E. and S.E. are adjacent settlements on the river, and have a combined population of about 2,500. There is a good export trade and a prosperous fishery. Saw mills, grist mills, stores, hotels, telegraph, telephone and express offices are here. The Hawkesbury and Inverness railway line passes through the village.

During the past fiscal year the dredge 'Cape Breton' operated here from July 27 until November 20, on the river and on the outer bar to a depth of 16 feet removing 67,725 cubic yards stone, gravel, sand and part of the hull of an old vessel at a cost of 10·72 cents per cubic yard.

The whole amount of dredging is 201,477 cubic yards and the expenditure at Mabou to the end of the present fiscal year for dredging, independent of first contract, is $60,237.

DREDGING AT PICTOU.

Pictou harbour is the finest on the southern shore of the Gulf of St. Lawrence, east of Gaspé. The valuable coal mines and stone quarries in the vicinity, and finely settled and fertile country enhance its importance.

On the north shore of the harbour, along the declivity of a ridge, the town of Pictou is situated, opposite which the harbour expands into three large arms, and at the heads of these are East, Middle and West rivers.

Pictou is the eastern terminus of a branch of the Intercolonial Railway and of the Oxford and Pictou branch, and it is 113 miles north-east of Halifax. The town is well built, having many good stores, banks, factories, saw mills, foundry and machine shops, marble works, stone quarries and other industries; also an academy, library, Masonic hall and several fine churches. The town is lighted by gas, has a population of about 3,400 and a very considerable trade. The annual exports of coal are very large. The P.E.I. Steam Navigation Co. makes Pictou a terminus for their steamers, and it is a place of call for other lines of steamers.

The dredging done by the department was at several localities in the rivers and harbour, to better facilitate shipping, &c., improving the approaches to the wharfs and deepening at and around them for berths. Pictou has a marine slip with two cradles, capable of hauling large vessels, with skilled labour for repairs, &c.

The first dredging done was in 1872-73 at the railway wharf and other wharfs by the dredge 'Canada,' since which time to the present the work has been almost continuous in seasons, at some part of the harbour. The most of the places here named where dredging has been done will also be found under their respective headings.

Places in Pictou harbour where dredging has been done by this department.

Acadia Coal Company wharf.
Albion Mines.
East River.
Halifax Coal Company wharf.
Pictou public market wharf.
Pictou Railway.
Pictou Landing Railway wharf.
Pictou Steam Ferry Company, slip.

Pictou Bar.
Pictou, Hogg, Craig & Co., wharf.
Pictou, Burnham & Morrell, wharf.
Pictou Vail Colliery.
Pictou, Granton channel.
Pictou, New Glasgow channel.
Pictou, Middle River channel.
Pictou, Dwyer's wharf.
Pictou, Dwyer's berth for ss. 'Campania.'
Pictou, Intercolonial Coal Mining Company, East river.

During the past fiscal year the dredge 'St. Lawrence' operated on the Pictou bar, at the harbour entrance, from July 1 until August 2, removing 17,150 cubic yards, sand and gravel at a cost of 10·83 cents per cubic yard, and leaving a depth of 19 feet. The 'St. Lawrence' also operated at the Market wharf from the 3rd to 31st August, removing 14,000 cubic yards of mud, at a cost of 11·41 cents per yard.

The total amount of dredging at Pictou bar, harbour and rivers up to June 30 is 559,416 cubic yards, and the cost $152,357.38.

DREDGING AT SHELBURNE HARBOUR.

The 'Canada' operated here from April 26 to June 7, removing 7,320 cubic yards of rock, gravel, sand and mud, at a cost of 35·59 cents per cubic yard.

DREDGING AT SYDNEY, CAPE BRETON COUNTY.

Sydney harbour is on the north-east coast of Cape Breton, three miles wide at its mouth, at five miles within the lighthouse, on Flat Point, the navigable channel contracts to the breadth of half a mile between the two bars of sand and shingle, which extend from the shore on either side. Inside these bars the harbour divides into two arms, called the west and south arms. The harbour is easy of access, and is capable of containing any number of large vessels in safety. It is closed by ice between the end of December and the beginning of May.

The town of Sydney stands on the east side of the South Arm, and is the shipping place for several coal mines, has several fine churches, hotels and government buildings, stone quarries and steel works, and is the terminal of the eastern branch of the Intercolonial railway.

North Sydney is on the north side of the West Arm, and is also a point of shipment for large quantities of coal. The anchorage is sheltered by the north bar. Northwesterly winds throw a heavy sea upon the bar, and wash the sand into the harbour.

From November 21, 1904, to January 4, 1905, and April 27 to June 4, and June 12 to 16, 1905, the dredge 'Cape Breton' was engaged deepening to 27 feet at the front and sides of the Nova Scotia Steel and Coal Company's coal and ore piers at North Sydney, removing 39,300 cubic yards of mud, stone, sand, silt and old timber at a cost of $6,495.47 or 16·52 cents per yard, improving the facilities for shipping the output from their works and mines. From the 21st to 24th June (in part), 1905, the dredge 'Cape Breton' was engaged removing a ballast heap from the harbour, in front of marine slip, 2,205 cubic yards at a cost of $165.65 or 7·57 cents per cubic yard. From June 5 to 10 this dredge was engaged removing a ballast pier in the harbour in front of the old marine slip, 2,625 cubic yards at a cost of $364.03, or 13·86 cents per cubic yard.

From June 20, 21, 24 and 30, in part the above named dredge was engaged removing 1,365 cubic yards clay, stone and mud from in front Ingraham's wharf, at a cost of $180.71 or 13·23 cents per cubic yard, and on June 26, in removing 1,155 cubic yards sand, mud and gravel from in front Salter's wharf, at a cost of $66.85, or 5·96 cents per cubic yard.

From June 17 to 20, the dredge 'Cape Breton' was engaged removing 1,470 cubic yards, mud and silt from in front Vooght's wharf, at a cost of $204.52 or 13·91 cents per cubic yard.

DREDGING AT YARMOUTH.

The seaport town of Yarmouth, is on a small bay, 205 miles south-west of Halifax, 88 miles from Annapolis. The town is of considerable extent being over two miles in length in a continuous direction. Population over 6,000. It contains many fine buildings, and is the chief shipowning place in the province. It has a large trade in fisheries and there are manufactures of iron castings, machinery, woodenware and a large number of fine stores and six hotels. There are boiler and other factories, and a tannery, custom house and post office, 4 banks, printing offices, newspapers, &c. There is a marine railway capable of hauling vessels of 500 to 600 tons in operation since October 1870. There are thirteen places of workship, one academy, four large schools and private schools. The town is prettily situated upon gently undulating ground, slightly elevated above the tide waters of its harbour.

Yarmouth is the terminus of the Dominion Atlantic railway, connecting with Halifax, and a line of steamers to Boston. The channel leading to the anchorage off the town is narrow and circuitous, but well marked with buoys. The anchorage within Bunker island is safe from all winds. The channel has had the attention of the government with regard to dredging since 1875. Surveys and plans have been carefully made and closely followed by the dredge with few exceptions, when amended instructions were given. There has been great improvement made here in widening and deepening to 16 feet L.W.S.T.

During the past year dredging was performed at the marine slip from July 1 to 7, alternately, removing 630 cubic yards mud, and at the steamboat wharf July 1 to 7, alternately as tide suited, removing 180 cubic yards, at a cost of 40·24 cents per cubic yard.

The whole amount of dredging at Yarmouth is 421,765 cubic yards, at a cost of $114,960.77.

The rise of tide in Yarmouth harbour is spring 16 feet, neaps 13.

PROVINCE OF PRINCE EDWARD ISLAND.

DREDGING AT GEORGETOWN, KING'S COUNTY.

From May 9 to 22, 1905, the dredge 'Prince Edward' worked at the Queen's wharf, at Georgetown, improving the depth of water there by removing 2,205 cubic yards of mud and sand at a cost of 60·26 cents per yard.

DREDGING AT MONTAGUE RIVER.

From May 23 to June 30, the dredge 'Prince Edward' worked on the Montague river, removing 10,620 cubic yards of mud and old timbers from the channel at the wharfs at a cost of 3·92 cents per yard.

DREDGING AT MOREL RIVER, KING'S COUNTY.

The dredge 'Prince Edward' operated on the Morel river from July 1 to August 12, 1904, opening a channel through a bar, towards the Prince Edward Island Railway bridge over that river, by removing 14,580 cubic yards of mud and sand at a cost of 21·31 cents per yard.

DREDGING AT WOOD ISLAND.

The dredge 'Prince Edward' operated at the Wood islands from August 13 to November 19, 1904, removing 5,625 cubic yards of sand from between the breakwaters at that place, at a cost of $1.67·17 cents per yard. The months of May, June, July and August are the most favourable months for dredging at this place.

PROVINCE OF NEW BRUNSWICK.

DREDGING AT CAMPBELLTON.

1,750 cubic yards were removed at Campbellton wharf at a cost of 35·47 cents per cubic yard from June 8 to 18, when the arrival of shipping prevented further operations there.

The total amount on the Restigouche river is 142,911 yards; cost, $30,144.67.

DREDGING AT DALHOUSIE.

Dalhousie, a port of entry and capital of the county at the entrance of the Restigouche river into the Baie des Chaleurs. It is 272 miles north of St. John by Intercolonial railway.

In front of the town is a well sheltered cove formed by Dalhousie island and a smaller island to the west of it. There is good holding ground for ships in nine fathoms of water. The approach to the harbour is either through a direct but narrow channel between middle ground and Dalhousie island, or to the northward and westward of the middle ground, which though over a flat of three fathoms at low water is usually taken, as there is plenty of room. There are fine wharfs and timber ponds for loading the largest ships. A large trade is done in preserved salmon and lobsters, and the export of timber and lumber.

Stores, factories, hotels, saw mills, several churches and the usual public buildings found in a prosperous town are here with a population of about 800.

The department ordered dredging at Dalhousie and Restigouche river in 1888-89-90, when the 'St. Lawrence' removed 22,301 cubic yards at a cost of $6,543.08, and at the Traverse, 110,810 at a cost of $21,415.93. The work was first on the Traverse, between Dalhousie and Campbellton, removing trees and sunken timber, with the view if possible to get 15 feet channel through a fine sand bottom. Then a winter berth was dredged between the wharfs at Dalhousie to enable the mail steamer to continue her trips late in the fall, winter and repair at Dalhousie, and resume her trips on the first opening of navigation, as owing to there being no winter berth, the steamer had to close her trips early, to enable it to reach winter quarters safely, and the ice prevented her early arrival from Quebec in the spring.

Spring tides rise 9 feet; neaps, 6 feet.

During the present year the work was continued on the Traverse from May 26 to June 7 and June 19 to 30, removing 8,050 cubic yards at a cost of 19·43 cents per cubic yard.

DREDGING AT MAQUAPIT AND FRENCH LAKE.

From October 6 to November 11, this dredge operated at Maquapit and French lake, tributaries of Grand lake, removing 12,915 cubic yards mud and sand at a cost of 15·48 cents per cubic yard, in part opening a channel there.

DREDGING AT POINT DUCHÊNE.

As stated in my report of last year, Point Duchêne is situated on Northumberland strait and is the north-east terminus of the Shediac branch of the Intercolonial railway, two miles from Shediac. It has long piers for shipping, and range lights on Shediac island (at the entrance) and on the pierhead.

The Prince Edward Island Steam Navigation Company steamers run every day between this port and Sumerside, Prince Edward island, while navigation is open, and connect with trains. It contains several stores, two or three hotels, telegraph and express offices, &c., and a population of about 250. Here is Shediac harbour the easiest of access and egress on this part of the coast. It is superior to Buctouche and Cocagne in the depth over the bar, and more extensive than the latter. The space for mooring shipping with 12 to 17 feet low water, being three-quarters of a mile in length and from two to three cables wide, is a secure harbour. The country about Shediac is fertile and well settled.

The improvement of the channel from Chene Spit to and along the piers by dredging has occupied the attention of the department for several years. In 1874-75, the 'Canada' worked here also in 1882-83 and 1883-84, and in 1890-91, the dredge 'St. Lawrence,' giving a total amount excavated to that date of 69,700 cubic yards at a cost of $21,125.92. A depth of 15 feet at low water spring tides was made.

Spring tides rise 4 feet; neaps, 2 feet.

The dredge 'Cape Breton' was engaged here from November 1 to 30, 1902, and May 11 to June 30, 1903, in completing a 15-foot channel, one hundred feet wide at low water, from the line of the range lights on Shediac island, to the outer end of the public wharf, and a basin in front of the wharf to 19 feet, 360 feet in length, 140 feet wide, removing 40,110 cubic yards at a cost of $4,915.80 or 12·25 cents per yard and was still prosecuting the work at the close of the fiscal year 1902-03.

From July 1 to 17, 1903, the dredge 'Cape Breton' continued the work to its completion, removing 8,295 cubic yards of sand and mud, at a cost of 20·55 cents per cubic yard.

The dredge 'St. Lawrence' operated at Point du Crêne, Shediac harbour, September 1 to December 6, 1904, and April 26 to May 25, 1905, improving the depth of basin, the berth at the railway wharf for ss. 'Northumberland,' and the channel out to the buoy; removing 41,650 cubic yards at a cost of 14·10 cents per cubic yard.

The whole amount of dredging at Point du Chêne is 182,980 cubic yards, cost $42,162.18.

DREDGING AT SHIPPEGAN GULLEY, GLOUCESTER COUNTY.

Shippegan Gulley, a passage between Shippegan island and the mainland, is situated on the western side of the Gulf of St. Lawrence, and is distant three miles south east of Shippegan village, the terminus of the Caraquet railway, and sixty-five miles east of Bathurst, the shire town.

From July 9 to October 30, 1904, and May 8 to June 30, 1905, the dredge 'George McKenzie' has operated on the Shippegan Gulley, removing 26,090 cubic yards in straightening the channel at a cost of 38·61 cents per cubic yard, and continuing the work at the close of the fiscal year.

DREDGING AT ST. JOHN.

The City of St. John, the commercial metropolis of the province is most advantageously and picturesquely situated on the estuary of the magnificent River St. John, one of the most notable in America, where it flows into the Bay of Fundy. One of the extraordinary features of this river is, what may be called its reversing fall. This flowing through a channel at the mouth of the river about 400 yards long and restricted to but 80 yards in width, presents an imposing view, and the rare

sight of a fall which reverses daily. This is occasioned by the great rise and fall of tide in the estuary. While at low tide the level of the river is some 15 feet above the sea, the 27 feet rise of water brings the harbour water some 12 feet above the level of the river, thus making two falls during every tide, one outward and one inward. Two bridges cross the river at this point, one a suspension bridge for ordinary travel, the other a railway bridge on the cantilever principle.

The dredging done in the harbour of this city by the Dominion government in sundry places is as follows :—The earliest at Anchor Line wharf, at the railway wharf, York Point and at the ferry slips. Previous to the construction of the cantilever bridge across the river the connection between the Intercolonial railway and the Canadian Pacific railway was by ferry, and for the benefit of the railways the department has had the slips and approaches dredged.

During the present season the dredge 'New Dominion' operated at the winter port berths in dredging for new piers from July 1 to September 5, and October 9 to December 14 and December 18 to 31, 1904, January 1 to 9, and April 7 to June 30, 1905, removing 58,835 cubic yards of mud, sand, timber and boulders at a cost of 19·37 cents per cubic yard. It also operated at Patridge island from September 6 to October 8 and December 15 and 16, improving the entrance to the piers at the island where landing is made by immigrants from the shipping, who go to the hospitals there, by removing 4,475 cubic yards of stone, gravel and sand at a cost of 49·77 cents per cubic yard. The dredge 'New Brunswick' also operated from November 19 to December 31, 1904, January 1 to February 3, and April 10 to June 30, 1905, removing 20,130 cubic yards of mud, timbers, wharf, slabs and edgings in part preparing for foundation of new piers at a cost of 43·49 cents per cubic yard.

The total amount removed for winter port berths and harbour channel has been 401,926 cubic yards at a cost of $78,467.40.

DREDGING AT HEUSTIS WHARF, ST. JOHN RIVER.

From August 17 to 23, the dredge operated in front of the Heustis wharf, St. John river, improving the depth of water by removing 270 cubic yards of mud at a cost of 78·77 cents per cubic yard.

DREDGING AT ACKERLY WHARF, WASHADEMOAK.

From July 23 to August 16, the dredge 'New Brunswick' operated in front the Ackerly wharf, Washademoak, improving the depth of water there by removing 4,840 cubic yards mud, at a cost of 20·56 cents per cubic yard.

DREDGING AT CAMBRIDGE WHARF, WASHADEMOAK.

From July 1 to 22, this dredge operated in front the Cambridge wharf, Washademoak, improving the depth of water by removing 2,900 cubic yards mud, at a cost of 37·01 cents per cubic yard.

DREDGING AT ROBERTSON'S WHARF, WASHADEMOAK.

From September 21 to October 3, this dredge operated at Robertson's wharf, Washademoak, improving the depth of water by removing 5,750 cubic yards mud, at a cost of 7·34 cents per cubic yard.

DREDGING AT WEBSTER WHARF, WASHADEMOAK.

From August 24 to September 20, and October 4 and 5, the dredge 'New Brunswick' operated in front of the Webster wharf, Washademoak, improving the depth

of water by removing 5,900 cubic yards of mud, at a cost of 15·29 cents per cubic yard.

DREDGING AT WESTFIELD.

From November 12 to 19, the dredge operated in front of the wharf at Westfield, St. John river, improving the depth of water there by removing 1,300 yards of mud at a cost of 27·86 cents per cubic yard.

MARITIME PROVINCE DREDGES.

The Dredge 'St. Lawrence.'

July 1, 1904-05, the 'St. Lawrence' was engaged on the bar at the entrance to Pictou harbour, dredging to 19 feet low water, and continued the work until August 2, when it operated from August 3 to 31, improving the channel into the Market wharf at Pictou town. On September 1 under orders it proceeded to Point du Chêne, in Westmorland county, and operated there until December 6, 1904, deepening the water at the Intercolonial Railway wharf, at the ss. 'Northumberland' berth, and forming a turning berth for the steamer. It also improved the depth of water in the basin and the channel out to the range ligths. At the latter date it went into winter quarters at Point du Chêne. During the winter necessary repairs and renewals were made to the hull, engines, and dredging machinery. New tumblers were furnished by the I. Matheson & Co., Ltd., and by St. John Iron Works, and new cylinder for steam steering engine. Other work by Mr. Connors, Shediac, and Mr. Armstrong, of Moncton. On receipt of orders the crew was shipped and work continued to completion at Point du Chêne from April 26 to May 25, 1905. Under orders this dredge then proceeded to Campbellton, Restigouche county, and from May 26 to June 27 and June 19 to 30, operated on the 'Traverse,' between Dalhousie and Campbellton, June 8 to 18 operating in front of the government wharf at Campbellton.

The Dredge 'Canada.'

From May 1 to July 7, operated alternately at the marine slip and wharfs of the Yarmouth and Boston Steam Ships at Yarmouth, improving the depth of water at these places. At the latter date under orders the 'Canada' proceeded to Sherrow's channel, Shelburne county, N.S., where it operated from July 8 to November 30, improving the channel to 12 feet. From the latter date to December 19, it operated at Barrington Passage, Shelburne, and then went into winter quarters at Liverpool, where new air, circulating, feed and bilge pumps were put in and other necessary repairs and renewals made, and the dredge placed on marine slip, hull scraped and painted, and crew shipped, and from April 14 to 25 it operated in Liverpool harbour, improving the channel near the marine slip. Under orders it then proceeded to and operated from April 26 to June 7, under much difficulty, in Shelburne harbour, removing rocks, mud and gravel, improving the depth of water in front of the wharfs there. Further work required will necessitate the use of a spoon dredge. The dredge was then removed to Lockeport, where it operated from June 8 to the close of the fiscal year.

The Dredge 'New Dominion.'

At the first of July, 1904, this dredge was continuing the dredging at winter port berths, St. John harbour, which it did until September 5, and from September 6

to October 8 it operated at Patridge island at the harbour entrance. October 9 to December 14 it continued the winter port work, and December 15 and 16 it again worked at Patridge island, then resuming the winter port work on December 18. It continued the same until January 9, when it laid off for repairs. Under orders the work at winter port was resumed April 7, and was being continued at the close of the fiscal year.

The Dredge 'Prince Edward.'

July 1, 1904, the dredge 'Prince Edward' was at Morell, King's county, P.E.I., continuing the work of opening a channel through a bar in the Morell river, which it completed by August 13, when it left for Wood islands, Queen's county, P.E.I., and after arrival there operated, deepening the water between the breakwaters, to November 19, at which time the weather became unfit for work, and dangerous for the dredge to remain.

Under orders the dredge and plant was removed to Charlottetown, and from there it was ordered to Georgetown, where it arrived on December 1, and immediately began unloading spare gear and making dredge ready for work, when snow and rain set in, the ice making it unfit for work, and the dredge was ordered into winter quarters, the scows and water boat being hauled out on W. W. Jenkin's wharf. During the winter the dredge and plant was under repairs, and ready for work by May 9, when the ice had left. From May 9 to 22, it operated at the Queen's wharf at Georgetown, and May 23 to June 30 on the Montague river in several places.

The Dredge 'George McKenzie.'

This dredge from the first of July continued the work at Cheticamp, Inverness county, Cape Breton, to July 8, and then proceeded to Shippegan in Gloucester county, New Brunswick, where it operated opening a new channel through a long point at the entrance to the harbour until October 20, when the dredge was placed in winter quarters at the new pier at Lameque.

Necessary repairs were made during the winter and early spring. Operations were again resumed May 8, and being prosecuted at the close of the fiscal year.

Owing to the long tow to deposit spoil, and to keep the dredge supplied with lighters, a second tug was engaged, the tug 'St. Nicholas,' owned by the J. B. Snowball Company, Limited.

The Dredge 'Cape Breton.'

This dredge operated at Cheticamp, Inverness county, Nova Scotia, from July 1 to 26, 1904, improving the depth of water in the channel at that place. At the last mentioned date orders were given and the dredge and plant removed to Mabou harbour, where it operated from July 27 to November 20, dredging the outer bar to 16 feet L.W.S.T., when wind and weather permitted work, and when unable to work on bar, improving the channel in the harbour to same depth; the work on bar was completed for about half the distance. At the latter date orders were given and the dredge and plant removed to North Sydney, at the Nova Scotia Steel and Coal Company piers, where it operated November 21 to January 4, 1905, and went into winter quarters there.

During the winter the two dredge buckets were rebuilt and repaired, the engines taken down and put in working order, also necessary repairs made to boiler, dredging machinery, hull and barges.

Orders were given, crew shipped and work resumed at the company's docks on April 27, and continued to June 4; June 5 to 10, engaged removing a ballast pier in the harbour and June 12 to June 16 it completed the company's docks. From June

17 to 20, improved the dock at Vooght's wharf, and June 21 to 30, improved Ingraham's dock and removed a ballast heap, also improved dock at Salter's wharf.

The Dredge 'New Brunswick.'

At the beginning of the fiscal year 1904-05, this dredge was operating at Cambridge wharf, Washademoak, Queen's county, New Brunswick, and completed same by July 22. From July 23 to August 16, it operated at Ackerly wharf and completed same. August 17 to 23, it operated at Heustis wharf completing the work there, August 24 to September 4 and October 5, operated at Webster's wharf to completion. September 24 to October 3, operated at Robertson's wharf, completing the dredging there. October 6 to 11, it operated at Maquapit and French lakes, tributaries of Grand lake in Queen's county, New Brunswick. Ice making, the dredge and plant were removed to and completed the work at Westfield wharf, St. John river, from November 12 to 18. November 19, the dredge was removed to and operated on the dredging for winter port piers, St. John harbour, from November 19, 1904, to February 3, 1905, when it was laid up and repairs made, work was again resumed on April 10, and continued to June 30.

The Tug 'Cricket.'

This tug, owned by the department, attended and served the dredge 'New Brunswick' while working on the St. John river, Washademoak, and Maquapit and French lakes. It has not been in commission from November 19, 1904, to June 30, 1905, a more powerful tug being required to take barges from winter port work to sea. It requires a new hull.

The Tug 'Rona.'

This tug, owned by the department, attended the dredge 'George McKenzie' July 1 to 8, at Cheticamp, Inverness county, Nova Scotia, then at Shippegan July 9 to October 20, when it returned to St. John and attended the dredge 'New Brunswick' from November 19 to February 3, 1905, when it had necessary repairs made, while the dredge was under repairs, and resumed work with the dredge, continuing the same until April 24, when it was, under orders, sent to Shippegan, Gloucester county, where it attended the dredge 'George McKenzie' to the end of the fiscal year.

Memorandum of quantities removed by the several dredges in the maritime provinces during the fiscal year 1904-05 :

	Cubic yards.
'St. Lawrence'	82,600
'Canada'	48,810
'New Dominion'	63,310
'Prince Edward'	33,030
'Geo. McKenzie'	27,340
'Cape Breton'	122,250
'New Brunswick'	53,105
	430,445

DREDGE VESSELS REPAIRS AND WINTERING, ETC.

Maritime Provinces.

The following amounts were expended on repairs and renewals to dredges and plant, during the year 1904-05:—

'St. Lawrence'	$ 2,001 78
'Canada'	5,468 78
'New Dominion'	2,037 72
'Prince Edward'	4,796 85
'Geo. McKenzie'	831 12
'New Brunswick'	1,981 14
'Cape Breton'	2,054 80
Tug 'Cricket'	Nil
Tug 'Rona'	1,102 44
Total	$ 20,274 63

DREDGING PLANT.

The following is a summary description of the dredging plant owned and operated by the Public Works Department in the maritime provinces :—

The self-propelling Elevator Dredge 'St. Lawrence' (iron hull).

Length over all—175 feet.
Beam—30 feet.
Draught when loaded aft—13·5 feet.
Draught when loaded forward—8·5 feet.
Least working depth (ladder with 32 buckets dropped 30 feet from bow)—8·5 feet.
Greatest working depth (bucket ladder dropped 40 feet from bow)—28·0 feet.
Capacity of hopper for spoil material—350 cubic yards.
Speed when light—6 to 7 miles per hour.
Speed when loaded—3 to 4 miles per hour.
Daily rate of dredging—
Hard material—350 to 700 cubic yards.
Ordinary earth—750 to 1,000 cubic yards.
Soft material—1,050 to 1,400 cubic yards.

The self-propelling Elevator Dredge 'Canada' (iron hull).

Length over all—130 feet.
Beam—20 feet.
Draught when loaded aft—11·5 feet.
Draught when loaded forward—7·0 feet.
Least working depth—7·0 feet.
Greatest working depth (ladder 24 buckets)—16·0 feet.
Capacity of hopper for spoil material—90 cubic yards.
Speed when light and newly painted—6 to 7 miles per hour.
Speed when loaded—3 to 4 miles per hour.
Daily rate of dredging—
In hard bottom—180 to 270 cubic yards.
With ordinary digging—180 to 360 cubic yards.
In soft material—360 to 450 cubic yards.

The Spoon Dredge 'New Dominion' (wooden hull).

Length over all—90 feet.
Width—28 feet.
Draught—5½ feet.
Greatest working depth—21 feet.
Daily rate of dredging—
In hard material—300 cubic yards.
In ordinary material—450 cubic yards.
In soft material—600 to 700 cubic yards.
Number of dump scows or barges used—4 (two are condemned).

The Spoon Dredge 'Prince Edward' (wooden hull).

Length over all—80 feet.
Width—28 feet.
Draught—6 feet.
Greatest working depth—21 feet.
Daily rate of dredging—
Hard material—300 cubic yards.
With ordinary material—500 cubic yards.
In soft material—600 to 700 cubic yards.
Number of dump scows or barges used—3.

The Spoon or Dipper Dredge 'George McKenzie' (wooden hull).

Length—90 feet.
Width—28 feet.
Draught—6 feet.
Greatest working depth—22 feet.
Daily rate of dredging—
In hard material—350 cubic yards.
Ordinary material—500 cubic yards.
In soft material—600 cubic yards.
Number of dump scows or barges used—3.

The Boom and Dipper 'Cape Breton' (steel hull).

Length—91 feet.
Beam—36 feet.
Draught—7½ feet.
Greatest working depth—34 feet.
Daily rate of dredging—
In hard material—1,000 cubic yards.
Ordinary material—1,500 cubic yards.
Soft material—2,000 cubic yards.
Number of barges used (each of 210 cubic yards capacity, steel)—2.

The Clam Shell Dredge 'New Brunswick' (wooden hull).

Length over all—90 feet.
Width—25 feet.
Draught—2½ feet.
Greatest working depth—17 feet.

Daily rate of dredging—
In hard material—180 cubic yards.
Ordinary material—300 cubic yards.
Soft material—650 cubic yards.
Number of deck scows used—3.
One pile driver, engine and boiler fitted on scow.
One stone lifter, engine and large grips (no boiler).

Tug 'Cricket.'

Length—36·5 feet.
Beam—7·3 feet.
Draft—3·10 feet.
Horse power—4.

The 'Rona.'

Length—85 feet.
Beam—19·3 feet.
Draft—8 feet.
Horse power—25.

CLASSIFICATION of Disbursements of the Dredges in the Maritime Provinces during the Year ending June 30, 1905.

DREDGE 'ST. LAWRENCE.'

ITEMS.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	483 33	483 33	492 16	476 89	483 33	491 54	356 41	269 33	276 52	453 13	553 96	660 00	5,479 93
Coal	157 50	244 50	136 50			557 25						878 50	1,974 25
Provisions		318 56	199 05	121 82	146 86	108 45	167 27				101 74	389 92	1,553 67
Stores		13 31			7 15					4 50		147 69	172 65
Equipment			193 68			4 89					15 25	97 03	310 85
Water			16 13	1 50	8 00	7 50	6 00				23 00	6 40	68 53
Repairs						347 56		333 97	33 00			5 00	719 53
Pilotage	78 00	81 00	85 49	78 00	78 00								400 49
Wharfage		34 00	6 00										40 00
Contingencies	60 00	5 35	18 82	12 50	3 19	7 10	1 50	1 93		12 14	47 63	12 61	182 77
Totals	778 83	1,180 05	1,147 83	690 71	726 53	1,524 29	531 18	605 23	309 52	469 77	741 58	2,197 15	10,902 67
Working expenses	778 83	1,180 05	1,147 83	690 71	726 53	1,176 73	121 50	Nil.	Nil.	469 77	741 58	2,192 15	9,225 68
Repairs, ordinary	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	5 00	5 00
" extraordinary	Nil.	Nil.	Nil.	Nil.	Nil.	347 56	409 68	605 23	309 52	Nil.	Nil.	Nil.	1,671 99
Totals	778 83	1,180 05	1,147 83	690 71	726 53	1,524 29	531 18	605 23	309 52	469 77	741 58	2,197 15	10,902 67

DREDGE 'CANADA.'

Wages	428 01	430 67	430 00	430 00	429 65	377 17	222 00	225 95	232 00	367 19	422 26	453 36	4,448 26
Coal	233 96	833 93			404 84				36 60	259 65		715 17	2,484 15
Provisions	78 90	29 20	159 09	93 09	108 21	61 46				90 61	6 70	168 66	790 92
Stores	16 14			11 83	2 55	25 84	31 62		0 13	12 72	91 68	36 32	228 83
Equipment	36 85	124 00	10 00						3 49		3 00	86 43	263 77
Water		12 30	22 50	45 30	21 00	5 40			5 00	2 00		17 45	130 95
Repairs	66 70	10 65	17 37		8 72	28 47	109 14	14 00	1,999 59	688 04	141 69	66 12	3,150 49
Pilotage	48 00	54 00	52 00	52 00	52 00	16 00					68 20	39 00	381 20
Towage									10 00				10 00
Wharfage										5 00		10 50	15 50
Contingencies	16 18		12 76	2 18	10 55	11 56	9 29		15 19	17 12	27 52	17 12	139 47
Totals	919 74	1,494 75	703 72	634 40	1,037 52	525 90	372 05	239 95	2,302 00	1,442 33	761 05	1,610 13	12,043 54
Working expenses	853 04	1,484 10	686 35	634 40	1,028 80	497 43	40 91	Nil.	54 32	754 29	619 36	1,544 01	8,197 61
Repairs, ordinary	66 70	10 65	17 37	Nil.	8 72	Nil.	Nil.	Nil.	107 99	194 30	141 69	19 69	567 11
" extraordinary	Nil.	Nil.	Nil.	Nil.	Nil.	28 47	331 14	239 95	2,139 69	493 74	Nil.	46 43	3,279 42
Totals	919 74	1,494 75	703 72	634 40	1,037 52	525 90	372 05	239 95	2,302 00	1,442 33	761 05	1,610 13	12,043 54

DREDGE 'NEW DOMINION.'

Wages	439 63	379 18	644 62	364 04	374 17	411 07	372 40	317 48	130 77	362 38	435 75	492 47	4,723 96
Coal	69 10	174 94	162 00	21 25		74 57		65 77			224 28	146 32	938 23
Provisions	62 62	33 09	112 53	48 05	61 99	228 22	39 17			16 40	129 24	224 12	955 43
Stores			34 89	14 94	5 69	13 15	10 60				46 55	64 18	190 00
Equipment		95 88		111 50								7 00	214 38
Water		135 88	34 00	45 50	42 38	43 63	8 38				112 50	19 25	441 52
Repairs	27 20	31 03	273 64	15 15	27 63	171 75	5 75	110 41	4 71		14 63	93 37	775 27
Towage	715 00	845 50	671 00	656 75	346 50	424 50	30 00	6 00		166 50	604 00	157 00	4,622 75
Contingencies	1 49		1 34	0 70	2 81	2 00		1 43			9 15	0 90	19 82
Totals	1,315 04	1,695 50	1,934 02	1,277 88	861 17	1,368 89	466 30	501 09	135 48	545 28	1,576 10	1,204 61	12,881 36
Working expenses	1,287 84	1,664 47	1,431 38	1,262 73	823 28	1,163 89	427 55	71 77	Nil.	545 28	1,561 47	1,111 24	11,350 90
Repairs, ordinary	27 20	31 03	140 29	15 15	Nil.	31 62	5 75	Nil.	Nil.	Nil.	14 63	93 37	359 04
" extraordinary	Nil.	Nil.	362 35	Nil.	37 89	173 38	33 00	429 32	135 48	Nil.	Nil.	Nil.	1,171 42
Totals	1,315 04	1,695 50	1,934 02	1,277 88	861 17	1,368 89	466 30	501 09	135 48	545 28	1,576 10	1,204 61	12,881 36

CLASSIFICATION of Disbursements of the Dredges in the Maritime Provinces during the Year ending June 30, 1905.

DREDGE 'PRINCE EDWARD.'

ITEMS.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	408 97	392 05	426 07	407 19	103 56	475 48	255 18	223 56	490 00	261 16	428 84	1,011 25	5,183 13
Coal	59 33	168 44		10 00	50 41	50 70						283 89	622 77
Provisions	9 95	87 28	190 96	71 47	94 44	214 45	77 51					175 11	921 17
Stores		4 40		26 10	38 70	87 80					8 75	18 70	184 45
Equipment				267 19	3 20	414 80							685 19
Water	57 30	30 00	19 30	85 00			17 50				2 00	50 85	261 95
Repairs							26 02	205 71		805 75		288 29	1,325 77
Pilotage					34 00	16 00						5 00	55 00
Towage	550 00	650 00	1,947 50	625 00	750 00	325 00			350 00		630 00	810 00	6,637 50
Warfage					11 00								11 00
Contingencies	4 90	23 15	2 80	9 90	1 93		68 21					187 04	297 93
Totals	1,090 45	1,355 32	2,586 63	1,501 85	1,387 24	1,584 23	444 42	429 27	840 00	1,066 91	1,069 59	2,830 13	16,186 04
Working expenses	1,090 45	1,355 32	2,586 63	1,501 85	1,387 24	1,584 23	142 32	Nil.	350 00	261 16	1,069 59	1,957 84	13,286 63
Repairs, ordinary	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	146 35	146 35
" extraordinary	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	302 10	429 27	490 00	805 75	Nil.	725 95	2,753 06
Totals	1,090 45	1,355 32	2,586 63	1,501 85	1,387 24	1,584 23	444 42	429 27	840 00	1,066 91	1,069 59	2,830 13	16,186 04

DREDGE 'GEO. McKENZIE.'

Wages	423 65	433 60	424 09	396 50	149 58	167 50	165 00	160 00	167 50	267 56	379 65	444 00	3,578 03
Coal	481 60	60 00	545 87	64 00								563 06	1,714 53
Provisions	89 90	43 74	10 20	242 99	24 88		9 11	21 27			1 44	243 93	687 46
Stores				24 52			1 00				16 85	92 99	135 36
Equipment		16 35	49 86	78 20								83 71	228 12
Water	0 50	33 50		355 00							33 00	97 00	519 00
Repairs	1 85	16 38		76 27	6 05	19 78	4 88				11 60		136 81
Pilotage	5 00	3 00											8 00
Towage				500 00								367 50	867 50
Contingencies	12 92	1 64	2 55	8 83	15 37		2 93				19 53	6 42	70 19
Totals	1,015 42	607 61	1,032 57	1,746 31	195 88	187 28	182 92	181 27	167 50	267 56	462 07	1,898 61	7,945 00
Working expenses	1,013 57	591 23	1'032 57	1,670 04	189 83	Nil.	Nil.	Nil.	Nil.	267 56	450 47	1,898 61	7,113 88
Repairs, ordinary	1 85	16 38	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	11 60	Nil.	29 83
" extraordinary	Nil.	Nil.	Nil.	76 27	6 05	187 28	182 92	181 27	167 50	Nil.	Nil.	Nil.	801 29
Totals	1,015 42	607 61	1,032 57	1,746 31	195 88	187 28	182 92	181 27	167 50	267 56	462 07	1,898 61	7,945 00

DREDGE 'CAPE BRETON.'

Wages	434 66	431 85	434 66	435 00	428 23	435 00	411 97	180 00	316 25	368 93	470 00	470 00	4,816 55
Coal	223 25		199 35	72 08	108 01		126 00					171 00	899 69
Provisions	138 29	8 05	93 65	214 84	187 22	103 84		103 85				430 42	1,280 16
Stores	37 70		23 25		39 87							11 79	112 61
Equipment						103 53					15 00	9 00	127 53
Water	32 42		7 50									30 00	69 92
Repairs				22 32	73 53	46 68		186 50		38 75		178 38	546 16
Pilotage			20 00										20 00
Towage	510 00	885 00	1,590 00	630 00	1,410 00	810 00	210 00					1,626 00	7,671 00
Wharfage			30 00										30 00
Contingencies	15 26	11 55		6 18		22 80		8 40			12 92	14 02	91 13
Totals	1,391 58	1,336 45	2,398 41	1,380 42	2,246 86	1,521 85	747 97	478 75	316 25	407 68	497 92	2,940 61	15,664 75
Working expenses	1,391 58	1,336 45	2,398 41	1,358 10	2,173 33	1,475 17	747 97	112 25	Nil.	368 93	497 92	2,762 23	14,622 34
Repairs, ordinary	Nil.	Nil.	Nil.	22 32	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	64 38	86 70
" extraordinary	Nil.	Nil.	Nil.	Nil.	73 53	46 68	Nil.	366 50	316 25	38 75	Nil.	114 00	955 71
Totals	1,391 58	1,336 45	2,398 41	1,380 42	2,246 86	1,521 85	747 97	478 75	316 25	407 68	497 92	2,940 61	15,664 75

CLASSIFICATION of Disbursements of the Dredges of the Maritime Provinces during the Year ended June 30, 1905.

DREDGE 'NEW BRUNSWICK.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Total.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	409 26	328 98	324 39	330 00	361 47	406 51	321 92	253 23	384 50	281 28	330 71	462 59	4,194 84
Coal		166 50		145 42	66 00	61 38	67 28				263 26		769 84
Provisions	65 61	54 66	281 23	89 85	114 24	91 65	103 47	44 97		11 51	83 60	229 67	1,170 46
Stores	83 71	24 47	8 50		76 95	38 02	22 46				59 80	37 62	351 53
Equipment	34 48				129 85							78 30	242 63
Water				1 50	11 00	36 75	29 50				107 25	60 75	246 75
Repairs	22 49	23 36	22 21	193 55	33 14	29 58		40 66		134 50	66 85	404 98	971 32
Towage	457 50			4 50	868 93	117 00		4 50			647 50	823 00	2,922 93
Contingencies		0 50	24 33	2 25	2 25	0 80					6 98	0 58	37 69
Totals	1,073 05	598 47	660 66	767 07	1,663 83	781 69	544 63	343 36	384 50	427 29	1,565 95	2,097 49	10,907 99
Working expenses	1,050 56	575 11	638 45	573 52	1,605 19	666 35	544 63	264 20	Nil.	292 79	1,499 10	1,692 51	9,402 41
Repairs, ordinary	22 49	23 36	22 21	Nil.	Nil.	2 68	Nil.	Nil.	Nil.	Nil.	66 85	130 60	268 19
" extraordinary	Nil.	Nil.	Nil.	193 55	58 64	112 66	Nil.	79 16	384 50	134 50	Nil.	279 38	1,237 39
Totals	1,073 05	598 47	660 66	767 07	1,663 83	781 69	544 63	343 36	384 50	427 29	1,565 95	2,097 49	10,907 99

TUG 'CRICKET.'

Wages	141 58	85 00	85 00	85 00	106 95								503 53
Provisions	30 00												30 00
Stores	29 27		2 85										32 12
Repairs		185 37			7 90								193 27
Totals	200 85	270 37	87 85	85 00	114 85	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	758 92
Working expenses	200 85	85 00	87 85	85 00	87 85								546 55
Repairs, ordinary	Nil.	185 37	Nil.	Nil.	Nil.								185 37
" extraordinary	Nil.	Nil.	Nil.	Nil.	27 00								27 00
Totals	200 85	270 37	87 85	85 00	114 85	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.

TUG 'RONA.'

Wages	190 00	202 50	189 66	190 00	190 00	190 00	190 00	223 50	205 00	192 50	190 00	190 00	2,343 16
Coal	44 05				86 63	61 99	54 75	31 11			180 48		459 01
Provisions	32 50	13 51	3 60	113 52	95 88	34 63	23 89	18 49		8 15	154 03	42 82	541 02
Stores		4 35	5 83			14 09					12 75	116 61	153 63
Equipment	38 48		45 65		22 68							41 70	147 91
Water	8 50				21 45		7 06				28 58		65 59
Repairs	22 36		28 16		210 26			51 17		38 57	8 53	150 70	509 75
Towage		4 00											4 00
Contingencies	0 77									10 00	2 50	2 04	15 31
Totals	336 66	224 36	272 90	303 52	626 30	300 71	275 70	324 27	205 00	249 22	576 87	543 87	4,239 38
Working expenses	314 30	224 36	244 74	303 52	416 04	300 71	275 70	49 60	Nil.	210 65	568 34	393 17	3,301 13
Repairs, ordinary	22 36	Nil.	28 16	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	8 53	150 70	209 75
" extraordinary	Nil.	Nil.	Nil.	Nil.	210 26	Nil.	Nil.	274 67	205 00	38 57	Nil.	Nil.	728 50
Totals	336 66	224 36	272 90	303 52	626 30	300 71	275 70	324 27	205 00	249 22	576 87	543 87	4,239 38

CLASSIFICATION AND QUANTITIES of Material removed by Dredges in the Maritime Provinces during the Year ending June 30, 1905.

DREDGE 'ST. LAWRENCE.'

Description of Material Dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Total.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Gravel and sand	15,050												15,050
Mud and shells			6,300	3,150									9,450
Sand, ordinary	700	1,400										8,050	10,150
Timber, sand and rubbish												1,750	1,750
Mud		14,000	4,900	10,850	4,900	350				2,450	8,750		46,200
Totals	15,750	15,400	11,200	14,000	4,900	350	Nil.	Nil.	Nil.	2,450	8,750	9,800	82,600

DREDGE 'CANADA.'

Sand												4,140	4,140
Rock and mud											585	90	675
Gravel and mud											1,125	810	1,935
Clay, mud and stone										1,170	4,050		5,220
Clay and rock										660			660
Sand and mud		2,610	3,870									900	7,380
Sand and clay		4,950											4,950
Mud	6,300		2,790	7,560	5,220	1,890				90			23,850
Totals	6,300	7,560	6,660	7,560	5,220	1,890	Nil.	Nil.	Nil.	1,920	5,760	5,940	48,810

DREDGE 'NEW DOMINION.'

Hard-pan	2,600		1,000										3,600
Boulders and gravel			875	500		425							1,800
Gravel and clay			1,375							75			1,450
Mud clay and boulders			375	5,475	4,000	1,725	300				8,760	1,775	22,410
Clay, stone and mud					725		100			5,625			6,450
Removing old wharf												3,300	3,300
Mud and edgings	1,950												4,950
Mud	2,300	12,100		1,050	350	3,550							19,350
Totals	9,850	12,100	3,625	7,025	5,075	5,700	490	Nil.	Nil.	5,700	8,760	5,075	63,310

DREDGE 'PRINCE EDWARD.'

Rock and mud											1,170		1,170
Rock and clay	5,220											405	5,625
Sand, shell and rock			855								2,790		3,645
Mud, shells and clay	4,860												4,860
Clay		2,610											2,610
Clay and sand				360									360
Sand, ordinary		90	1,598	2,227	495								4,410
Mud and shells		945											945
Mud		945										8,460	9,405
Totals	10,080	4,590	2,453	2,587	495	Nil.	Nil.	Nil.	Nil.	Nil.	3,960	8,865	33,030

DREDGE 'GEORGE McKENZIE.'

Gravel and sand		440											440
Clay			2,340	3,240									5,580
Mud, clay and sand												7,560	7,560
Sand, ordinary	1,610	675											2,285
Sand and mud		2,115											2,115
Mud and clay		675	3,510								5,175		9,360
Totals	1,610	3,905	5,850	3,240	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	5,175	7,560	27,340

CLASSIFICATION AND QUANTITIES of Material removed by Dredges in the Maritime Provinces, &c. *Continued.*

DREDGE 'CAPE BRETON.'

Description of Material Dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Total.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Coal, rock, mud and logs										2,100	10,920		13,020
Rock						4,650							4,650
Mud and rock							105					2,835	2,940
Gravel and sand	5,565	5,250	840	2,100		2,100						1,155	17,010
Ledge, clay, sand and gravel			1,890								5,565	9,660	17,115
Clay, stone and logs			3,780			3,780					1,050		8,610
Sand, ordinary	840	12,180	11,760	19,530	6,510								50,820
Sand and logs					2,205								2,205
Ledge, mud, sand and stone		1,680								1,050	3,150		5,880
Totals	6,405	19,110	18,270	21,630	8,715	10,530	105	Nil.	Nil.	3,150	20,685	13,650	122,250

DREDGE 'NEW BRUNSWICK.'

Edgings, slabs and mud					400	2,720	1,360	400		1,750	6,250	7,250	20,130
Mud and stone		1,790											1,790
Sand and clay		1,250	800										2,050
Gravel and clay	900				1,300								2,200
Clay	500			5,625									6,125
Clay and stone			250										250
Clay, sand and rock			1,900										1,900
Sand and stone		270											270
Mud	4,550	650	5,050	4,495	3,645								18,390
Totals	5,950	3,960	8,000	10,120	5,345	2,720	1,360	400	Nil.	1,750	6,250	7,250	53,105

DETAILS OF DREDGING IN THE MARITIME PROVINCES.

For the Fiscal Year ending June 30, 1905.

Dredge.	Locality.	Date.	Time Dredging.	Quantity.	Expenditure at Locality.	Per Cubic Yard for Local Expenditure.	Wintering, Repairs, Equipment, and Superintendence, *pro rata*.	Total Cost.	Per Cubic Yard for Total Expenditure.
			Hrs. Min.	C. yds.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
St. Lawrence	Pictou Bar, Pictou Co., N.S.	July 1 to Aug. 2, 1904	93 40	17,150	1,160 25	0 06·76	715 07	1,875 32	0 10·93
	Market Wharf "	Aug. 3 to 31, 1904	77 15	14,000	988 76	0 07·06	609 37	1,598 13	0 11·41
	Point du Chêne, Westmorland Co., N.B.	Sept. 1 to Dec. 6, 1904 and Apl. 26 to May 25, 1905.	198 20	41,650	3,634 67	0 08·72	2,240 04	5,874 71	0 14·10
	Traverse, Restigouche Co., N.B.	May 26 to June 7 and June 19 to 30, 1905.	40 15	8,050	968 08	0 12·02	596 62	1,564·70	0 19·43
	Government Wharf, Campbellton, N.B.	June 8 to 18, 1905	20 15	1,750	384 19	0 21·95	236 77	620 96	0 35·47
Canada	Steamboat Wharf, Yarmouth, Yarmouth Co., N.S., alternately.	July 1 to 7, 1904	3 20	180	41 30	0 22·94	31 14	72 44	0 40·24
	Marine slip, Yarmouth, Yarmouth, Co., N.S.	July 1 to 7, 1904	9 55	630	144 56	0 22·94	108 98	253 54	0 40·24
	Sherrow's Channel, Shelburne Co., N.S.	July 8 to Nov. 30, 1904	362 25	32,490	4,450 49	0 13·69	3,354 73	7,805 22	0 24·02
	Barrington Passage "	Dec. 1 to 9, 1904	18 26	1,890	275 81	0 14·59	207 91	483 72	0 25·59
	Liverpool, Queen's Co., N.S.	April 14 to 25, 1905	22 08	1,260	320 51	0 25·44	241 61	562 12	0 44·61
	Shelburne, Shelburne Co., N.S.	April 26 to June 7, 1905	97 21	7,320	1,485 15	0 20·28	1,119 51	2,604 66	0 35·59
	Lockeport "	June 8 to 30, 1905	64 56	5,040	547 17	0 10·85	412 46	959 63	0 19·04
New Dominion	Winter Berths, St. John, St. John Co., N.B.	July 1 to Sept. 5 and Oct. 9 to Dec. 14 and Dec. 18 to 31, 1904 and Jan. 1 to 9 and Apl. 7 to June 30, 1905.	1,086 15	58,835	8,444 55	0 14·35	2,955 54	11,400 09	0 19 37
	Partridge Island " "	Sept. 6 to Oct. 8 and Dec. 15 and 16, 1904.	103 30	4,475	1,650 07	0 36·87	377 52	2,227 59	0 49 77
Prince Edward	Morell, King's Co., P.E.I.	July 1 to Aug. 12, 1904	257 36	14,580	1,812 27	0 12·43	1,295 32	3,107 59	0 21·31
	Wood Island, Queen's Co., P.E.I.	Aug. 13 to Nov. 19, 1904	233 05	5,625	5,483 88	0 97·49	3,919 57	9,403 45	1 67·17
	Queen's Wharf, Georgetown, King's Co., P.E.I.	May 9 to 22, 1905	95 06	2,205	774 93	0 35·14	553 87	1,328 80	0 60·26
	Montague River, King's Co., P.E.I.	May 23 to June 30, 1905	229 30	10,620	1,915 14	0 18·03	1,368 84	3,283 98	0 30 92
Geo. McKenzie	Cheticamp, Inverness Co., N.S.	July 1 to 8, 1904	26 00	1,250	375 48	0 30·03	196 89	572 37	0 45·78
	Shippegan, Gloucester Co., N.B.	July 9 to Oct. 20, 1904 and May 8 to June 30, 1905.	591 25	26,090	6,609 64	0 25·33	3,465 83	10,075 47	0 38·61

DETAILS OF DREDGING IN THE MARITIME PROVINCES.

For the Fiscal Year ending June 30, 1905.

Dredge.	Locality.	Date.	Time Dredging.	Quantity.	Expenditure at Locality.	Per Cubic Yard for Local Expenditure.	Wintering, Repairs, Equipment, and Superintendence, *pro rata*.	Total Cost.	Per Cubic Yard for Total Expenditure.
			Hrs. Min.	C. yds.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Cape Breton	Cheticamp, Inverness Co., N.S.	July 1 to 26, 1904	35 45	6,405	1,466 76	0 22·90	356 51	1,823 27	0 28·46
	Mabou "	July 27 to Nov. 29, 1904	335 30	67,725	5,848 33	0 08·63	1,421 49	7,269 82	0 10·72
	N. S. Steel and Coal Co., Cape Breton Co., N.S.	Nov. 21 to Jan. 4 and April 27 to June 4 and June 12 to 16, 1905.	312 00	39,300	5,225 39	0 13·29	1,270 08	6,495 47	0 16·52
	Ballast Pier, Cape Breton Co., N.S.	June 5 to 10, 1905	20 00	2,625	292 85	0 11·15	71 18	364 03	0 13·86
	Vooght's Wharf "	June 17 to 20, 1905	16 15	1,470	164 53	0 11·19	39 99	204 52	0 13·91
	Ingraham Wharf "	June 20, 21, 24 and 30, 1905	16 15	1,365	145 38	0 10·65	35 33	180 71	0 13·23
	Ballast Heaps "	June 21 to 24, 1905	18 45	2,205	133 26	0 06·04	32 39	165 65	0 07·51
	Salter's Wharf "	June 26, 1905	7 00	1,155	55 38	0 04·79	13 47	68 85	0 05·96
New Brunswick	Cambridge, Washademoak, Queen's Co., N.B.	July 1 to 22, 1904	90 00	2,900	764 00	0 26·34	309 31	1,073 31	0 37·01
	Ackerley Wharf " "	July 23 to Aug. 16, 1904	190 00	4,840	708 41	0 14·63	286 79	995 20	0 20·56
	Huestis Wharf " "	Aug. 17 to 25, 1904	51 00	270	151 42	0 56·07	61 30	212 72	0 78·77
	Webster's Wharf " "	Aug. 24 to Sept. 20 and Oct. 4 and 5, 1904.	210 30	5,000	541 24	0 10·88	220 34	764 58	0 15·29
	Robertson's Wharf " "	Sept. 21 to Oct. 3, 1904	85 30	5,750	300 50	0 05·22	121 64	422 14	0 07·34
	Maquapit and French Lake, Grand Lake, N.B.	Oct. 6 to Nov. 11, 1904	224 30	12,915	1,423 16	0 11·02	576 15	1,999 31	0 15·48
	Westfield, King's Co., N.B.	Nov. 12 to 18, 1904	40 00	1,300	257 81	0 19·83	104 38	362 19	0 27·86
	Winter Berths, St. John, St. John Co., N.B.	Nov. 19 to Dec. 31 and Jan. 1 to Feb. 3 and Apl. 10 to June 30, 1905.	594 00	20,130	6,232 68	0 30·96	2,523 24	8,755 92	0 43·49
			5,877 43	430,445	65,181 00	0 15·14	31,651 18	96,832 18	0 22·49

Expenditure for Dredging in Nova Scotia for the thirty-three years ended June 30, 1905.

County.	Locality.	Total for the thirty-two years ended June 30, 1904.			For the Year 1904 1905.			Total quantity.	Total Cost.	Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
Antigonish	Antigonish	22,025	3,649 15					22,025	3,649 15	
	Harbour Au Bouche	59,243	19,703 33					59,243	19,703 33	
	Tracadie	12,245	5,530 29					12,245	5,530 29	
	McNair's Cove	11,265	10,035 68					11,265	10,035 68	
	Bayfield	12,871	9,505 79					12,871	9,505 79	
	Arisaig	8,330	7,452 26					8,330	7,452 26	
	Cribbin's Point	4,675	4,125 19	60,001 69				4,675	4,125 19	60,001 69
Annapolis	Annapolis	2,825	1,635 68	1,635 68				2,825	1,635 68	1,635 68
Cape Breton	Lingan	22,267	9,275 56					22,267	9,275 56	
	Sydney	62,917	20,904 88					62,917	20,904 88	
	Little Glace Bay	46,450	16,936 02					46,450	16,936 02	
	Port Caledonia	17,413	8,242 21					17,413	8,242 21	
	Benacadie Pond	20,860	5,993 90					20,860	5,993 90	
	Christmas Island	19,045	3,364 98					19,045	3,364 98	
	Cow Bay	3,255	1,892 32					3,255	1,892 32	
	Main A Dieu	4,680	2,720 76					4,680	2,720 76	
	Louisburg	22,310	5,480 52					23,310	5,480 52	
	North Sydney (Coal & Steel Co)	15,190	6,648 45		39,300	6,495 47		54,490	12,943 92	
	" Salter's Wharf	630	315 01		1,155	68 85		1,785	383 86	
	" Ballast Pier				2,625	364 03		2,625	364 03	
	" Vooght's Wharf				1,470	201 52		1,470	201 52	
	" Ingraham "				1,365	180 71		1,365	180 71	
	" Ballast Heap			81,774 61	2,205	165 65	7,479 23	2,205	165 65	89,253 84
Colchester	Tatamagouche	65,480	20,373 07	20,373 07				65,480	20,373 07	20,373 07
Cumberland	Parrsboro	42,595	12,804 68					42,595	12,804 68	
	Wallace	93,865	24,140 37	36,945 05				93,865	24,140 37	36,945 05
Digby	Digby	55,740	11,009 10					55,740	11,009 10	
	Weymouth	88	28 62	11,037 72				88	28 62	11,037 72
Guysboro'	Guysboro'	5,400	1,413 53					5,400	1,413 53	
	Larry's River	47,655	16,519 85					47,655	16,519 85	
	Port Mulgrave	4,347	2,494 81					4,347	2,494 81	
	Sherbrooke	1,260	496 49					1,260	496 49	
	Cook's Cove	16,815	7,336 29					16,815	7,336 29	

EXPENDITURE for dredging in Nova Scotia for the thirty-three years ended June 30, 1905 *Concluded.*

County.	Locality.	TOTAL FOR THE THIRTY-TWO YEARS ENDED JUNE 30, 1904.			FOR THE YEAR 1904-1905.			Total quantity.	Total Cost.	Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
Halifax	St. Mary's River	81,812	22,352 04					81,812	22,352 04	
	Tickle Passage, Little Canso	3,015	4,477 97					3,015	4,477 97	
	Bar, Sonora, St. Mary's River	5,628	2,204 33	57,295 31				5,628	2,204 33	57 295 31
	Chezzetcook	3,920	2,593 71					3,920	2,593 71	
	Halifax Ferry	6,177	2,063 38					6,177	2,063 38	
	Herring Cove	26,101	12,049 68					26,101	12,049 68	
	Ketch Harbour	4,227	1,690 53					4,227	1,690 53	
	Richmond Wharf	792	182 53					792	182 53	
	Roche's Wharf	1,750	620 28					1,750	620 28	
	Halifax Railway terminus	35,565	11,056 79					35,565	11,056 79	
	Jeddore	21,515	4,958 56					21,515	4 958 56	
	North West Arm	7,350	2,970 39					7,350	2,970 39	
	Cunard's Wharf	1,400	530 04					1,400	530 04	
	Salmon River	14,288	5,962 93					14,288	5,962 93	
	Spry Bay	10,665	3,075 72					10,665	3,075 72	
	Eastern Passage	2,070	596 97					2,070	596 97	
	Sambro	4,815	1,388 61	49,740 12				4,815	1,388 61	49,740 12
Inverness	Whycocomagh	19,760	3,491 31					19,760	3,491 41	
	Campbell's Pond	4,940	872 83					4,940	872 83	
	Port Hastings	270	190 37					270	190 37	
	Cheticamp	198,620	69,013 38		7,655	2,395 64		206,275	71,409 02	
	Mabou	133,752	52,967 18		67,725	7,269 82		201,477	60,237 00	
	Port Hood	10,123	5,696 99					10,123	5,696 99	
	Grand Etang	10,980	3,431 25	135,663 31			9,665 46	10,980	3,431 25	145,328 77
Lunenburg	Lunenburg	70,510	22,194 57					70,510	22,194 57	
	Mahone Bay	21,844	5,958 65					21,844	5,958 65	
	Vogler's Cove	11,610	5,075 53	33,228 75				11,610	5,075 53	33,228 75
Pictou	Acadia Coal Co., wharf	22,460	5,262 26					22,460	5,262 26	
	Albion Mines	9,475	2,181 25					9,475	2,181 25	
	East River	144,407	47,696 43					144,407	47,696 43	
	Halifax Coal Co., wharf	1,650	359 90					1,650	359 90	
	Pictou, Public Market, wharf	99,200	25,416 65		14,000	1,598 13		113,200	27,014 78	
	" Railway "	64,649	16,337 69					64,649	16,337 69	
	" Landing Ry. "	48,645	8,898 40					48,645	8,898 46	

	" Steam Ferry Co. Slip.	720	246 18						720	246 18	
	" Bar	25,550	2,277 93		17,150	1,875 32			42,700	4,153 25	
	" Hogg, Craig & Co. whf.	6,090	1,204 29						6,090	1,204 29	
	" Burnham & Morrell	1,050	211 19						1,050	211 19	
	Vale Colliery	1,395	682 15						1,395	682 15	
	River John	85,173	22,243 98						85,173	22,243 98	
	Granton	25,110	10,707 59						25,110	10,707 59	
	New Glasgow	35,445	11,795 79						35,445	11,795 79	
	Middle River	15,060	4,984 40						15,060	4,984 40	
	C. Dwyer's wharf	5,400	1,087 66						5,400	1,087 66	
	" berths for SS. 'Campania'	5,850	2,000 22						5,850	2,000 22	
	Dwyer & Co.'s wharf	360	123 09						360	123 09	
	Intercolonial Coal Mining Co., East River, Pictou	46,900	7,410 86	171,127 91			3,473 45		46,900	7,410 86	174,601 36
Queen's	Liverpool	80,970	31,381 98		1,260	562 12			82,230	31,944 10	
	Port Mouton	10,620	2,283 77	33,665 75			562 12		10,620	2,283 77	34,227 87
Richmond	D'Escousse	23,650	10,052 76						23,650	10,052 76	
	St. Peter's Canal	90,830	27,435 95						90,830	23,435 95	
	St. Peter's	7,150	2,407 41						7,150	2,407 41	
	Grand Goulet	23,584	5,570 49						23,584	5,570 49	
	River Bourgeois	18,920	4,468 87						18,920	4,468 87	
	Marine Slip	320	56 53						320	56 53	
	Poulement	10,080	2,566 14						10,080	2,566 14	
	Fourchu Harbour	16,875	9,454 94	62,013 09					16,875	9,454 94	62,013 09
Shelburne	Lockeport	75,358	18,026 86		5,040	959 63			80,398	18,986 49	
	Barrington Passage	40,780	13,123 31		1,890	483 72			42,670	13,607 03	
	Osborne	990	145 31						990	145 31	
	Wood's Harbour	1,170	245 45						1,170	245 45	
	Barrington Public Wharf, Sherrow's Channel	28,530	9,806 87		32,490	7,805 22			61,020	17,612 09	
	Shelburne			41,347 80	7,320	2,604 66	11,853 23		7,320	2,604 66	53,201 03
Yarmouth	Yarmouth	421,102	114,135 33		810	325 98			421,102	114,135 33	
	Milton	663	499 46	114,634 79			325 98		663	499 46	114,960 77
Hants	Winter	5,450	1,627 60	1,627 60					5,450	1,627 60	1,627 60
Victoria	Aspey Bay	3,820	1,569 95	1,569 95					3,820	1,569 95	1,569 95
Dredge 'C. B.' losses			762 98	762 98						762 98	762 98
Totals		2,939,281	914,445 18	914,445 18	203,460	33,359 47	33,359 47		3,142,741	947,804 65	947,804 65

EXPENDITURE for dredging in New Brunswick for the thirty-three years ended June 30, 1904.

County.	Locality.	For the thirty-two years ended June 30, 1904.			For the year 1904-5.			Total Quantity.	Total Cost.	Cost for each County.
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
Gloucester	Bathurst	98,637	29,095 79					98,637	29,095 79	
	Caraquet	16,485	6,312 23					16,485	6,312 23	
	Shippegan			35,408 02	26,090	10,075 47	10,075 47	26,090	10,075 47	45,483 49
Kent	Richibucto	172,778	53,544 01					172,778	53,544 01	
	Cocagne	27,180	9,601 45					27,180	9,601 45	
	Buctouche	13,005	4,934 24					13,005	4,934 24	
	" Priests Point	3,510	1,110 70					3,510	1,110 70	
	" Chapel Point	4,140	1,310 07					4,140	1,310 07	
	" Robertsons wharf	45	14 23	70,514 70				45	14 23	70,514 70
King's	Belleisle Point	79,905	13,052 23					79,905	13,052 23	
	Kennebecasis River	116,270	20,081 83					116,270	20,081 83	
	Moss Glen	10,200	1,924 47					10,200	1,924 47	
	Westfield			35,058 53	1,300	362 19	362 19	1,300	362 19	35,420 72
Northumberland	Horse Shoe, Miramichi	208,892	55,058 36					208,892	55,058 36	
	Outer Bar "	29,935	7,965 31					29,935	7,965 31	
	Grand Dune "	37,975	10,121 67					37,975	10,121 67	
	Gordon Flats "	22,425	4,403 95					22,425	4,403 95	
	Neguac "	6,300	6,969 76	84,519 05				6,300	6,969 76	84,519 05
Queen's	Grand Lake	202,317	28,086 10		12,915	1,999 31		215,232	30,085 41	
	" McNair's Cove	20,440	4,522 82					20,440	4,522 82	
	Jemseg	87,230	17,190 06					87,230	17,190 06	
	Washademoak	65,675	8,073 65					65,675	8,073 65	
	" Cambridge whf				2,900	1,073 31		2,900	1,073 31	
	" Ackerley wharf				4,840	995 20		4,840	995 20	
	" Huestis "				270	212 72		270	212 72	
	" Websters "				5,000	764 58		5,000	764 58	
	" Robertsons "				5,750	422 14		5,750	422 14	
	Grimross, mid ground	12,040	3,274 99					12,040	3,274 99	
	Gagetown Creek Canal	45,935	7,739 97					45,935	7,739 97	
	Spoon Island	3,000	402 51					3,000	402 51	
	Wards Shoal, Salmon River	46,625	4,593 59					46,625	4,593 59	
	Curley Shoal	36,625	3,369 16					36,625	3,369 16	
	Chipman and Briggs Corner	104,275	12,269 49					104,275	12,269 49	
	Upper Gagetown wharf	1,700	1,104 90					1,700	1,104 90	

	McClure Shoals	39,525	4,556 66					39,525	4,556 66		
	Queen's Coal Co., Newcastle	14,475	1,335 06	96,518 96			5,467 26	14,475	1,335 06	101,986 22	
Restigouche	Dalhousie	22,301	6,543 08					22,301	6,543 08		
	Traverse	110,810	21,415 93		8,050	1,564 70		118,860	22,980 63		
	Campbellton Govt., wharf			27,959 01	1,750	620 96	2,185 66	1,750	620 96	30,144 67	
St. John	I. C. Ry. terminus	210,492	51,885 40					210,492	51,885 40		
	Navy Island	25,294	9,296 79					25,294	9,296 79		
	Marble Cove	29,925	4,374 40					29,925	4,374 40		
	Murray's Mills	27,555	3,681 41					27,555	3,681 41		
	Indiantown wharf	1,615	192 83					1,615	192 83		
	Long wharf	7,137	2,680 24					7,137	2,680 24		
	Miller and Woodman	9,275	1,090 42					9,275	1,090 42		
	Hayford and Stetson	8,015	942 29					8,015	942 29		
	International wharf	450	52 90					450	52 90		
	Adams wharf	7,513	3,247 29					7,513	3,247 29		
	Anchor Line wharf	4,695	996 81					4,695	996 81		
	Dominion Atlantic wharf	15,525	4,484 72					15,525	4,484 72		
	St. John, Winter Berths	320,548	53,247 47		78,965	20,156 01		398,513	73,403 48		
	" Harbour Channel	3,413	5,063 92					3,413	5,063 92		
	Purves and Murchie Mill	675	142 57					675	142 57		
	McAvity's wharf	4,110	606 88					4,110	606 88		
	Lawtons wharf	570	101 46					570	101 46		
	Thorne wharf	1,980	249 02					1,980	249 02		
	Maritime Nail Co. wharf	1,425	224 52					1,425	224 52		
	Cushing's Mill	20,850	1,222 86					20,850	1,222 86		
	Hilyard Bros	1,400	314 10					1,400	314 10		
	Kennebecasis River	2,025	604 37					2,025	604 37		
	Partridge Island			144,702 67	4,475	2,227 59	22,383 60	4,475	2,227 59	167,086 27	
Sunbury	Oromocto	395,447	66,427 58					395,447	66,427 58		
	McLean wharf	625	181 59					625	181 59		
	Ox Island	51,800	5,266 50					51,800	5,266 50		
	French Lake	25,475	3,787 49					25,475	3,787 49		
	Bents wharf, Maugerville	2,310	428 44					2,310	428 44		
	Upper Sheffield	3,830	425 15	76,516 75				3,830	425 15	76,516 75	
Westmorland	Point du Chene	141,330	36,287 47		41,650	5,874 71		182,980	42,162 18		
	Cape Tormentine	35,120	9,004 92	45,292 49			5,874 71	35,120	9,004 92	51,167 10	
York	Fredericton	126,365	21,679 06					126,365	21,679 06		
	St. Marys Ferry	15,570	6,827 36					15,570	6,827 36		
	Gibson	30,395	4,379 52					30,395	4,379 52		
	Naashwaak	1,600	435 22					1,600	435 22		
	Fisher and Chestnut Shoals	8,200	1,547 12					8,200	1,547 12		
	Canada Eastern Ry. wharf	3,970	1,013 98					3,970	1,013 98		
	Springhill, Chapel and Russell Bars	96,295	24,386 78					96,295	24,386 78		
	Robinson's Bar	6,965	1,717 16					6,965	1,717 16		
	Douglas Booms	14,235	1,512 87	63,449 07				14,235	1,512 87	63,499 07	
	New Brunswick, Equipment		1,591 12	1,591 12					1,591 12	1,591 12	
	Total	3,376,744	681,580 27	681,580 27	193,955	46,348 89	46,348 89	3,570,699	727,929 16	727,929 16	

Expenditure for dredging in Prince Edward Island for the thirty-three years ended June 30, 1905.

County.	Locality.	Totals for the thirty-two years ended June 30, 1904.			For the year 1904-05.			Total Quantity.	Total Cost.	Costs for each County
		Quantity.	Cost.	Cost for County.	Quantity.	Cost.	Cost for County.			
		Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.	Cubic yards.	$ cts.	$ cts.
King's	Grand River	76,170	15,304 04					76,170	15,304 04	
	Montague River	171,675	33,263 49		10,620	3,283 98		182,295	36,547 47	
	Murray Harbour, South	101,253	18,147 03					101,253	18,147 03	
	Sturgeon	16,026	6,066 27					16,026	6,066 27	
	St. Mary's Wharf	21,963	4,752 55					21,963	4,752 55	
	Georgetown Ry. Wharf	1,002	408 32					1,002	408 32	
	" Queen's Wharf				2,205	1,328 80		2,205	1,328 80	
	Cardigan Bridge	35,955	8,619 36					35,955	8,619 36	
	Newport	3,240	917 82					3,240	917 82	
	Souris	3,825	1,083 53					3,825	1,083 53	
	Murray River	41,062	11,433 61					41,062	11,433 61	
	" Railway	5,926	1,860 30					5,926	1,860 30	
	Morrell	28,755	8,865 00	110,721 32	14,580	3,107 59	7,720 37	43,325	11,692 59	118,441 69
Queen's	Charlottetown Ry. Wharf	86,151	22,162 30					86,151	22,162 30	
	" Pownal	14,193	2,963 50					14,193	2,963 50	
	" Ferry	10,075	2,006 99					10,075	2,006 99	
	" Steam Nav. Co.	13,113	5,491 77					13,113	5,491 77	
	" Connolly Wharf	9,978	4,409 68					9,978	4,409 68	
	" Peake Bros.	12,195	5,362 46					12,195	5,362 46	
	" Queen St. Slip	3,915	1,109 03					3,915	1,109 03	
	" Geo. Peake Wharf	5,805	1,644 42					5,805	1,644 42	
	" Poole	12,240	1,609 95					12,240	1,609 95	
	" McMillan	6,165	1,320 13					6,165	1,320 13	
	" Dom. Building Sewer	5,355	1,146 68					5,355	1,146 68	
	" Public Sewerage	2,880	679 12					2,880	679 12	
	Webster's Corners, E. River	203	43 47					203	43 47	
	Crapaud, Victoria	118,040	34,574 90					118,040	34,574 90	
	Pownal Bay	33,610	6,536 20					33,610	6,536 20	
	Rocky Point	82,920	13,426 13					82,920	13,426 13	
	Vernon River	25,240	8,292 55					25,240	8,292 55	
	Wood Islands	2,780	548 00		5,625	9,403 45		8,405	9,951 45	
	Nine Mile Creek	31,650	6,286 46					31,650	6,286 46	

	Hickey Wharf	750	150 51					750	150 51	
	Carr's Point	12,165	2,441 28					12,165	2,441 28	
	Pinette	3,825	756 24					3,825	756 24	
	Fort Augustus	3,195	631 68					3,195	631 68	
	Southport Ferry	45,300	7,508 75					45,300	7,508 75	
	Red Point	7,161	3,879 60					7,161	3,879 60	
	North Rustico	13,536	4,775 38					13,536	4,775 38	
	South Rustico	11,649	4,109 67					11,649	4,109 67	
	Gauthier's Creek	17,847	8,305 50					17,847	8,305 50	
	Malpeque	28,575	3,483 32					28,575	3,483 32	
	French River	41,671	13,311 46					41,671	13,311 46	
	Bay View	4,095	1,912 87					4,095	1,912 87	
	Wedlocks	1,260	520 48					1,260	520 48	
	Belfast, Halliday's Wharf	15,435	4,468 78	175,869 26			9,403 45	15,435	4,468 78	185,272 71
Prince	Summerside	91,571	28,032 51					91,571	28,032 51	
	Hurd's Point Pier	65,505	14,315 47					65,505	14,315 47	
	Tignish	11,387	13,005 45					11,387	13,005 45	
	Cascumpec	1,157	538 42					1,157	538 42	
	Cape Traverse	16,740	5,105 89					16,740	5,105 89	
	Holman's Wharf	9,585	1,269 21	62,266 95				9,585	1,269 21	62,266 95
	Total	1,385,771	348,857 53	348,857 53	33,030	17,123 82	17,123 82	1,418,801	365,981 35	365,981 35

Expenditure for dredging in Quebec for the thirty-three years ended June 30, 1905.

From appropriations Maritime Provinces.

Magdalen Islands, Co. Gaspé	House Harbour	6,800	2,392 92					6,800	2,392 92	
Magdalen Islands, Co. Gaspé	Amherst Harbour	495	242 05	2,634 97				495	242 05	2,634 97
Témiscouata	River du Loup	2,587	825 47	825 47				2,587	825 47	825 47
Rimouski	Rimouski	8,123	3,997 59	3,997 59				8,123	3,997 59	3,997 59
	Total	18,005	7,458 03	7,458 03	Nil.	Nil.	Nil.	18,005	7,458 03	7,458 03

STATEMENT of Dredging, showing Quantities Removed in each Province, and Cost of each Work for the Thirty-three Years ended June 30, 1905.

Fiscal Year.	New Brunswick.		Nova Scotia.		Quebec.		Prince Edward Island.		Total Quantity. Cubic Yards	Total Expenditure.	Cost per Cubic Yard.
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.			
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
1872-3	38,060	13,240 50	23,260	8,422 70					61,320	21,663 20	0. 35 328
1873-4	57,725	14,395 57	18,600	6,545 61	6,800	2,392 92			83,125	23,334 10	0. 28 71
1874-5	78,223	17,325 05	24,416	13,238 83			18,655	9,892 89	121,294	40,456 77	0. 33 354
1875-6	79,935	17,040 52	91,974	21,885 90			58,283	10,891 80	230,192	49,818 22	0. 21 642
1876-7	97,690	23,161 90	127,785	34,846 74			74,460	12,758 27	299,935	70,766 91	0. 23 594
1877-8	81,070	23,325 92	106,857	29,607 94			82,860	12,011 18	270,787	64,943 04	0. 23 983
1878-9	132,555	27,400 22	116,307	28,267 59			46,490	9,164 07	295,352	64,831 88	0. 21 951
1879-1880	63,540	16,581 79	127,684	34,765 84	765	374 08	36,390	12,674 98	228,379	64,396 69	0. 28 197
1880-1	44,315	12,385 85	87,118	23,061 64	2,317	693 44	46,335	9,298 53	180,085	45,439 46	0. 25 232
1881-2	79,640	18,626 87	89,566	33,363 71			47,325	9,356 57	216,531	61,347 15	0. 28 331
1882-3	48,565	13,422 70	143,616	42,996 93			68,535	11,080 37	260,716	67,500 00	0. 25 890
1883-4	47,058	17,103 38	157,560	49,050 58			79,750	13,355 05	284,368	79,509 01	0. 27 959
1884-5	128,997	24,460 35	76,164	25,250 73	8,123	3,997 59	55,075	8,668 01	268,359	62,376 68	0. 23 242
1885-6	68,505	14,874 63	56,790	21,482 05			17,137	10,349 66	142,432	46,706 34	0. 32 793
1886-7	69,440	11,452 86	53,400	25,621 19			6,137	6,214 74	128,977	43,288 79	0. 33 56
1887-8	50,152	9,252 50	84,175	29,847 60			3,775	5,899 90	138,102	45,000 00	0. 32 58
1888-9	63,633	16,598 08	56,910	32,697 00			24,240	15,502 95	144,783	64,798 03	0. 27 29
1889-1890	86,068	20,544 93	59,783	22,821 55			31,442	11,085 39	177,273	54,451 87	0. 30 71
1890-1	96,588	20,375 06	61,698	24,386 57			19,004	8,843 92	177,290	53,605 55	0. 30 23
1891-2	75,023	20,592 85	81,993	27,376 08			31,382	12,788 34	188,398	60,757 27	0. 32 249
1892-3	108,035	23,742 26	40,834	18,125 58			66,585	15,112 83	215,454	56,980 67	0. 26 44
1893-4	77,505	21,564 27	59,581	28,664 99			61,536	12,269 24	198,622	62,498 50	0. 31 46
1894-5	59,715	13,630 11	105,463	32,202 70			48,060	10,428 90	213,238	56,261 71	0. 26 38
1895-6	98,905	21,352 63	36,428	15,828 89			36,360	10,299 93	171,693	47,481 45	0. 27 65
1896-7	203,975	34,050 86	84,735	22,080 46			51,078	10,937 62	339,788	67,068 94	0. 19 73
1897-8	187,325	27,611 17	147,085	31,497 57			46,710	10,701 49	381,120	69,810 23	0. 18 31
1898-9	105,058	23,315 82	155,510	36,628 81			51,040	13,283 71	311,608	72,228 34	0. 23 50
1899-1900	175,935	28,232 46	152,033	37,589 22			94,364	17,537 73	422,332	83,359 41	0. 19 76
1900-1	205,369	32,615 29	94,557	36,141 17			26,020	18,984 13	325,946	87,740 59	0. 26 91
1901-2	218,210	28,508 97	143,142	39,247 35			51,320	16,196 95	405,682	83,953 27	0. 20 69
1902-3	197,207	36,195 40	134,648	32,856 93			55,943	16,160 33	387,798	85,212 66	0. 21 97
1903-4	252,725	53,046 12	94,675	34,171 45			49,500	13,775 37	396,900	100,992 94	0. 25 44
1904-5	193,955	46,348 89	203,460	33,359 47			33,030	17,123 82	430,445	96,832 18	0. 22 49
Totals	3,569,701	742,373 78	3,097,807	933,931 37	18,005	7,458 03	1,418,801	372,648 67	8,098,324	2,056,411 85	0. 25 39

STATEMENT of Dredging, showing Quantities removed by hand in each Province and cost of each Dredging for the Thirty-three Years ended June 30, 1905.

Fiscal Year.	New Brunswick.		Nova Scotia.		Quebec.		Prince Edward Island.		Total Quantity. Cubic Yards	Total Expenditure.	Cost per Cubic Yard.
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.			
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
1878-9			245	555 13					245	555 13	2. 26 58
1879-1880			12,370	3,666 90					12,370	3,666 90	0. 29 64
1880-1			11,140	2,560 25					11,140	2,560 25	0. 22 98
1881-2			10,640	2,650 09					10,640	2,650 00	0. 24 90
1882-3			8,190	2,500 00					8,190	2,500 00	0. 30 52
1883-4			5,460	2,500 00					5,460	2,500 00	0. 45 78
1899-1900			343	248 71					343	248 71	0. 72 51
1900-1901			320	250 75					320	250 75	0. 78 35
1902			1,645	496 38					1,645	496 38	0. 30 17
			50,353	1 428 12					50,353	15,428 12	0. 30 64

STATEMENT of dredging in the Maritime Provinces, showing quantities removed by and expenditure of each dredge during the thirty-three years ended June 30, 1905.

Dredge.	TOTAL QUANTITIES AND COST FOR THIRTY-TWO YEARS ENDING JUNE 30, 1904.			1904-1905.			TOTAL FOR THIRTY-THREE YEARS ENDED JUNE 30, 1905.		
	Total Quantity.	Cost.	Per cubic yard.	Quantity.	Cost.	Per cubic yard.	Total Quantity.	Total cost.	Cost per cubic yard.
		$ cts.	$ cts.		$ cts.	$ cts.		$ cts.	$ cts.
St. Lawrence	1,547,231	402,879 35	0 26 03	82,600	11,533 82	0 13 96	1,629,831	414,413 17	0 25 42
Canada	1,002,034	319,368 66	0 31 87	48,810	12,741 33	0 26 10	1,050,844	332,109 99	0 30 55
New Dominion	1,670,592	285,133 22	0 17 06	63,310	13,627 68	0 21 52	1,733,902	298,760 90	0 17 23
Prince Edward	1,349,411	348,065 47	0 25 79	33,030	17,123 82	0 51 88	1,382,441	365,189 29	0 26 41
(Old) Cape Breton	534,938	139,074 33	0 25 99				534,938	139,074 33	0 25 99
Geo. McKenzie	707,575	297,383 35	0 42 02	27,340	10,647 84	0 38 94	734,915	308,031 19	0 41 91
Cape Breton	604,630	107,611 82	0 17 79	122,250	16,572 32	0 13 55	726,880	124,184 14	0 17 08
New Brunswick	239,560	53,565 88	0 22 36	53,105	14,585 37	0 27 46	292,665	68,151 25	0 23 28
	7,655,791	1,953,082 08	0 25 51	430,445	96,832 18	0 22 49	8,086,416	2,049,914 26	0 25 35

STATEMENT of dredging performed by hand in the Maritime Provinces, showing quantities removed and expenditure at each locality for the thirty-three years ended June 30, 1905.

Locality.	TOTAL QUANTITIES AND COST FOR THIRTY-TWO YEARS ENDING JUNE 30, 1904.			1904 1905.			Total Quantity.	Total cost.	Cost per cubic yard.
	Total Quantity.	Cost.	Per cubic yard.	Quantity.	Cost.	Per cubic yard.			
		$ cts.	$ cts.		$ cts.	$ cts.		$ cts.	$ cts.
Parrsboro', N.S.	42,595	12,804 68	0 30 06				42,595	12,804 68	0 30 06
Windsor, N.S.	5,450	1,627 60	0 29 86				5,450	1,627 60	0 29 86
Milton, N.S	663	499 46	0 75 33				663	499 46	0 75 33
Racquette, N.S	1,645	496 38	0 30 17				1,645	496 38	0 30 17
	50,353	15,428 12	0 30 64				50,353	15,428 12	0 30 64

PROVINCE OF QUEBEC.

DREDGING IN THE BARBOTTE RIVER.

The dredge 'Richelieu' worked at this place from July 4 to 16, 1904, making an entrance from the Richelieu river. Five cuts were made: two 73 feet long, two 100 feet long and one 184 feet long; 25 feet wide and to a depth of 7 feet at low water. As these cuts were made parallel a channel was made at the mouth of this river 125 feet wide. The quantity of material removed was: 3,200 cubic yards of sand and clay.

DREDGING AT BATISCAN.

The dredge 'Pontiac' (leased) worked at this place between June 26 and 30, 1905, the close of fiscal year. Two cuts were made, near the Canadian Pacific Railway bridge, 1,000 feet long each, 20 feet wide and to a depth of from 6 to 7 feet at low water.

4,080 cubic yards of clay, stone and sand were removed.

DREDGING IN THE BEAUHARNOIS CHANNEL.

From September 5 to October 1st, and between October 24 and November 5, 1904, the close of navigation, the dredge 'Central City' (leased) was engaged in widening this channel. One cut was made 1,655 long, 20 feet wide and to a depth of 12 feet at low water.

The quantity of material removed consisted of 12,560 cubic yards of boulders, hardpan and clay.

DREDGING AT BELŒIL.

Work was started at this place by the dredge 'Richelieu' between September 23 and 30, 1904, dredging through boulder shoals at the Grand Trunk Railway bridge, at Parizeau's wharf and at the government dam. Four cuts were made: two 50 feet long, on 25 feet long, and one 132 feet long; 9 feet wide and 10 feet deep at low water.

570 cubic yards of hardpan and boulders were removed.

Operations were resumed at this place by the dredge 'Richelieu' on May 26, 1905. One day's work was done at this place, removing a sunken pier one half mile below the railway bridge near edge of channel.

DREDGING AT BERTHIER EN BAS.

Dredge 'Nithsdale' worked at this place between June 15 and 30, 1905, the close of the fiscal year. One cut was made 250 feet long, 20 feet wide and 8 feet deep at low water, on the west side of the wharf.

The material removed was 3,150 cubic yards of clay, stone, sand and mud.

DREDGING AT BLANCHE SHOALS.

Between September 8 and November 14, 1904, the dredge 'T. F. M. No. 1' (leased) made one cut through a sand shoal, opposite the Big Blanche, 832 feet long. The other cuts were made at the foot of this shoal opposite the Little Blanche, 868 feet long. All these cuts were made 22 feet wide and to a depth of 10 feet at low water.

The quantity of material removed was 27,350 cubic yards of sand and clay.

This same dredge worked at this place between June 7 and 30, 1905, the end of the fiscal year, continuing the work done the previous season. One cut was made 974 feet long, 22 feet wide and 10 feet deep at low water.

Seven thousand one hundred cubic yards of boulders, clay and sand were removed.

DREDGING AT CALUMET.

The dredge 'T.F.M. No. 1' (leased), worked at this place between July 1 and 23, 1904, continuing the work done the previous fiscal year. One cut was made along the Canadian Pacific Railway's wharf into the mill, 576 feet long, 22 feet wide and 10 feet deep at low water.

The material taken out was 9,400 cubic yards of sand and stone.

DREDGING AT CHAMBLY.

From May 20 to 25, 1905, dredge 'Richelieu' worked at this place making one cut, 115 feet long, 25 feet wide and 9 feet deep at low water, on the approach to Ducharme's boat house.

Nine hundred and fifty cubic yards of hard-pan, boulders and clay were removed.

DREDGING AT CHATEAUGUAY BASIN.

Dredging was done in this place between July 1 and September 3, and also from October 3 to 22, 1904, by the dredge 'Central City' (leased.) Four cuts were made along the front of the wharfs in the basin, 475 feet long each, 20 feet wide and to a depth of 12 feet at low water.

Sixteen thousand three hundred and twenty cubic yards of hard-pan and boulders were removed.

DREDGING AT CHARLEMAGNE.

Between November 10 and 15, 1904, the close of navigation, dredge 'Otto' (leased), worked at this place. The channel was deepened in front of McLaren's wharf.

Two thousand cubic yards of stone and gravel were removed.

DREDGING AT CHICOUTIMI.

The dredge 'Lady Minto' commenced work at the foot of the batture, eight miles below Chicoutimi, going up.

The channel was dredged for a distance of 3,000 feet on a width of 250 feet, giving a depth of water of 18 feet at low water spring tides.

The quantity of material removed was 141,100 cubic yards of clay and sand; a great quantity of boulders were removed. Dredging was resumed this spring by the spoon dredge 'International."

Dredging was done in front of the Chicoutimi wharf, so as to give a depth of water of 14 feet, at low water spring tides.

The tug 'Storm-King' attended the dredge.

DREDGING AT COMO.

Between October 17 and November 15, 1904, the close of navigation, the dredge 'No. 4 Cohen' (leased), worked at this place, making two cuts 186 and 235 feet long, 22 feet wide and 8 feet deep at low water. The dredging was done at Hodgin's wharf to allow vessels to reach the wharf to load lumber. 2,495½ cubic yards of hard-pan and stones were removed.

DREDGING AT DOUCET'S LANDING.

Dredging operations were performed at this place by the dredge 'Pontiac' from October 4 to 31, 1904, under contract.

The quantity of material removed was 19,043 cubic yards of clay, stone and sand.

From June 2 to 24, 1905, the dredge 'No. 5', also worked here under contract, removing 28,501 cubic yards of boulders, clay and sand.

DREDGING AT GRAHAM.

Between June 5 and 30, 1905, the close of the fiscal year, the dredge 'No. 4, G.C. Co.' (leased), was working at this place. One cut was made from the wharf out to the channel, 3,090 feet long, 26 feet wide and 10 feet deep at low water.

18,550 cubic yards of clay were removed.

DREDGING AT GRENVILLE.

Work was performed at this place by the dredge 'T.F.M. No. 1' (leased), between July 26 and September 5, 1904, making one cut in front of Dansereau's wharf, and leading out to the main channel, 1,177 feet long, 22 feet wide and to a depth of 9 feet at low water.

15,750 cubic yards of sand and boulders were removed.

DREDGING AT ILE DU PAS.

Between May 18 and June 6, 1905, the dredge 'St. Louis' worked at this place. One cut was made between Ile aux Castors and Ile Dupas, deepening the channel; 682 feet long, 25 feet wide and to a depth of 7½ feet at low water.

3,947 cubic yards of clay and sand were removed.

DREDGING AT ISLE-AUX-NOIX.

Work was performed at this place by the dredge 'Richelieu' from July 19 to August 17, 1904, removing a shoal on the flats, opposite the range lights, to straighten the channel. Three cuts were made; 650, 575 and 525 feet long, 20 feet wide and to a depth of 9 feet at low water. 7,150 cubic yards of sand were taken out.

DREDGING AT LACOLLE.

Work was commenced at this place by the dredge 'Richelieu' on June 2, 1905, and continued there up to the 20th of the same month. Work was done along Wilson's wharf. Three cuts were made, 235, 60 and 20 feet long, 25 feet wide and 6 feet deep at low water.

The material removed was 2,300 cubic yards of hard-pan, boulders, clay and sand.

DREDGING AT L'ASSOMPTION.

Dredge 'No. 4 Daly' (leased) worked at this place from July 1 to November 15, 1904, the close of navigation. Six cuts, 1,200 feet long each, were made on the big shoal near Bourbon Island. Two cuts in front of Repentigny's Landing, 500 and 200 feet long. One cut in the channel near Vaudry's Island, 700 feet long. And one cut at the wharf of the Charlemagne Lumber Co., 1,300 feet long. All the above cuts were made to a width of 25 feet and to a depth of 12 feet at low water.

The material removed consisted of 62,680 cubic yards of clay, mud and stones.

The dredge 'Quebec' (leased) performed the work at this place between June 12 and 30, 1905, the close of the fiscal year. One cut was made 674 feet long, 20 feet wide and 13 feet deep at low water, in the channel in front of the Ferry Dock wharf.

14,710 cubic yards of clay were removed.

DREDGING AT MURRAY BAY.

Between October 1 and November 12, 1904, the close of navigation, the dredge 'Progress' worked at this place, dredging on the east side of the wharf, to a depth of 12 feet, as a protection to vessels from westerly winds.

15,900 cubic yards of clay, stone and silt were removed.

DREDGING AT NOTRE-DAME DE PIERREVILLE.

Operations were started at this place by the dredge 'St. Louis' from June 9 to 30, 1905, the close of the fiscal year. The work consisted in deepening the channel in front of Ile St. Joseph. One cut was made 1,177 feet long, 25 feet wide and 9 feet deep at low water.

3,540 cubic yards of clay and sand were removed.

DREDGING IN THE OTTAWA RIVER.

Between July 14 and November 11, 1904, the close of navigation, the dredge 'Challenge' worked at this place, deepening the channel from the main channel in the Ottawa river to the Hawkesbury Lumber Company's wharfs. Seven cuts were made: 213, 650, 208, 856, 80 and two 224 feet long; all to an average width of 25 feet and to a depth of 10 feet at low water. The quantity of material removed consisted of 13,090 cubic yards of sand, boulders and hard-pan.

Dredge 'Challenge' continued work at this place from June 1 to 30, 1905, the close of the fiscal year, on same work as the previous season. Seven cuts were made: 56, 35, 202, 212, 53, 104 and 336 feet long, 25 feet wide and 10 feet deep at low water. The material removed was 4,850 cubic yards of hard-pan, boulders and sand.

DREDGING AT PENTECOST.

Between August 27 and October 6, 1904, the dredge 'International' worked at this place. The work consisted in dredging a foundation for crib work for new wharf, also the deepening of the channel from the harbour out to deep water.

48,000 cubic yards of hard-pan, boulders and sand were removed.

DREDGING AT POINTE PLATON.

From October 24 to 27, 1904, the dredge 'Nithsdale' worked at this place, in front of the wharf making one cut 200 feet long, 20 feet wide and to a depth of 10 feet at low water.

One thousand seven hundred and fifty cubic yards of sand were taken out.

DREDGING AT QUEBEC.

Work was performed at this place by the dredge No. 6, between May 19 and June 30, 1905, the close of the fiscal year. One cut was made in front of Archer and Company's dock, 210 feet long, 40 feet wide and to a depth of 10 feet at low water.

21,120 cubic yards of boulders and sand were removed.

Dredging was also done at this place by the dredge 'Progress' from May 10 to June 30, 1905, the close of the fiscal year. Two cuts were made on the approach to the new breakwater under construction ; 700 and 300 feet long, 40 feet wide and 15 feet deep at low water.

The material removed was 18,720 cubic yards of clay, stone and silt.

The dredge 'International' also worked at this place between July 1 and 15, October 25 and November 22, 1904, the close of navigation; also between May 4 and June 17, 1905. The work done consisted in dredging material for back filling for continuation of new wharf at Louise basin.

The material removed consisted of 77,300 cubic yards of hard-pan, boulders and sand.

DREDGING AT RIGAUD.

Work was performed at this place by the dredge 'No. 4 Cohen' (leased), between July 1 and October 15, 1904. Two cuts were made in the channel near the Canadian Pacific Railway bridge, 1,355 feet long each, 22 feet wide and to a depth of 12 feet at low water.

The amount of material removed at this place consisted of 35,652½ cubic yards of clay and sand.

The dredge 'Chateauguay' worked at this place under contract, from June 2 to 30, 1905, continuing the work performed during the previous season.

The quantity of material removed was 11,060 cubic yards of boulders, gravel and clay.

DREDGING AT RIVIÈRE OUELLE.

The dredge 'Progress' started work at this place on August 1, and continued there up to September 24, 1904, dredging in front and on both sides of the wharf, for the purpose of making a harbour of refuge, principally for the Murray Bay and River Ouelle ferry.

16,000 cubic yards of clay and silt were removed.

DREDGING IN THE RIVER JESUS.

From July 1 to October 15, 1904, the dredge 'Otto' (leased), worked at this place, making one cut in front of McDonald's wharf, 2,500 feet long, 21 feet wide and to a depth of 8 feet at low water.

81,565 cubic yards of hard-pan and stone were removed.

DREDGING AT RIVIÈRE DU LOUP.

Dredge 'No. 6, McDonald' (leased), operated at this place from May 29 to June 30, 1905, the close of the fiscal year. The work consisted in deepening and widening the channel. Four cuts were made, 1,664, 740, 231 and 456 feet long, 30 feet wide and 13 feet deep at low water.

33,300 cubic yards of clay, sand and logs were removed.

DREDGING AT ROBERVAL.

The dredge 'P. V. Savard' worked here, removing 2,800 cubic yards of clay and a large quantity of saw-dust.

DREDGING AT ST. AIMÉ.

Work was done at this place by the dredge 'St. Louis,' from July 1 to October 15, 1904, deepening the channel in the river. Two cuts were made, 2,529 and 2,500 feet long, 25 feet wide and to a depth of 8 feet at low water.

The material removed consisted of 12,015 cubic yards of sand.

DREDGING AT ST. ANDREWS.

Dredging was performed at this place by the dredge 'Little Giant' (leased), between August 18 and November 12, 1904, the close of navigation. The work done at this place consisted of deepening the channel through the rapids to enable vessels to reach the wharfs. One cut was made 1,000 feet long, 26 feet wide and 11 feet deep at low water. The material removed at this place was 7,560 cubic yards of hard-pan and boulders.

DREDGING AT ST. ANTOINE.

Between August 22 and September 22, 1904, the dredge 'Richelieu' started work in front of Miller's hay slide, where three cuts were made: 270, 250 and 27 feet long, 12 feet wide and to a depth of 7½ feet at low water. Six cuts were also dredged in front of Lapierre's wharf: 50, 60, 70, 75, 95 and 127 feet long, 15 feet wide and to a depth of 7½ feet at low water. Three other cuts were also made in front of Gendron's wharf: 50, 60 and 53 feet long, 15 feet wide and 7½ feet deep at low water.

The material removed was 6,300 cubic yards of clay and boulders.

DREDGING AT ST. DENIS.

From October 3 to 22, 1904, the dredge 'Richelieu' worked at this place, dredging at Lamothe's hay slide and at Bousquet's wharf. Six cuts were made: 210, 215, 190, 32, 50 and 95 feet long ; 15 feet wide and to a depth of 7 feet at low water.

6,900 cubic yards of clay were removed.

DREDGING AT ST. CHARLES.

Dredge 'Richelieu' worked at this place between October 26 and November 7, 1904, the close of navigation. One cut was made from the channel in the Richelieu river to the mouth of the Amyot river, 461 feet long, 20 feet wide and to a depth of 7 feet at low water. 2,620 cubic yards of clay were removed.

DREDGING AT ST. JEAN DES CHAILLONS.

Operations were performed at this place by the dredge 'Nithsdale' between July 1 and 16, and from October 29 to November 12, 1904, the close of navigation. One cut, 1,000 feet long, 20 feet wide and 8 feet deep, was made in front of the brick yards.

The amount of material removed consisted of 6,650 cubic yards of sand.

DREDGING AT ST. JOHNS.

The dredge 'Richelieu' worked at this place between May 11 and 13, and also from June 22 to 30, 1905, the close of the fiscal year. The work done consisted of one cut at Singer's wharf, for the Department of Railways and Canals, near entrance to lock, 175 feet long, 12 feet wide and 8 feet deep at low water. One cut was also made at end of dam, 50 feet long, 25 feet wide and 6 feet deep at low water. Two other cuts were also made at end of dam, 50 feet long, 25 feet wide and 6 feet deep at low water. Two other cuts were also made above V. C. bridge, 98 feet long each, 25 feet wide and to a depth of 6 feet at low water.

The quantity of material removed was 2,712 cubic yards of hard-pan, boulders, clay and sand.

DREDGING AT ST. MICHEL DE BELLECHASSE.

Dredge 'Nithsdale' started work at this place on July 19 and worked up to October 22, 1904, making a number of small cuts in different places, in the channel through the bar, which makes the total length of cuts made 850 feet long, 20 feet wide and 8 feet deep at low water.

The material removed consisted of 9,240 cubic yards of sand.

DREDGING AT ST. MAURICE RIVER.

Dredging operations were performed at this place by the dredge 'Duke of York,' between May 6 and June 30, 1905, widening and deepening the channel.

The material removed consisted of 47,646 cubic yards of clay, stone and sand.

DREDGING AT SOREL.

The dredge 'St. Louis' worked at this place between November 10 and 26, 1904, the close of navigation. The work was done at the government wharf.

810 cubic yards of sand were removed.

Work was also done at this place by the dredge 'Nithsdale' between May 9 and June 8, 1905. Two wrecks were removed in the harbour, which were interfering with navigation.

The dredge 'Progress' also worked at this place from July 1 to 31, 1904, removing wrecks and old cribs in the vicinity of the ship yard wharfs.

240 cubic yards of clay, stone and silt were removed.

DREDGING AT TERREBONNE.

Dredge 'Otto' (leased), worked at this place from October 17 to November 9, 1904, making one cut in the channel, 635 feet long, 21 feet wide and 8 feet deep at low water.

5,800 cubic yards of stone and gravel were removed.

DREDGING AT THREE RIVERS.

Dredge 'No. 5' was engaged at this place from June 26 to 30, 1905, under contract, and removed 120 cubic yards of boulders, clay and sand.

DREDGING AT VILLE MARIE.

Dredging was performed by the dredge 'Queen' between August 3 and 12, 1904, continuing the work done the previous season in front of the wharf, making one cut 400 feet long, 26 feet wide and to a depth of 7 feet at low water mark. The quantity of material removed consisted of 2,625 cubic yards of clay.

DREDGING AT YAMASKA.

Between September 3 and 30, and also from October 17 to November 8, 1904, the dredge 'St. Louis' worked at this place, making two cuts in the channel, near the bridge, 2,083 and 62 feet long, and one cut near Ile St. Jean, 1,749 feet long. All these cuts were made to a width of 25 feet and a depth of 8 feet at low water.

8,458 cubic yards of sand were removed.

The dredge 'St. Lawrence (leased), also worked at this place from June 14 to 30, 1905, the end of the fiscal year. Two cuts were made in the channel a length of 1,985 feet, 20 feet wide and 8 feet deep at low water.

The material removed consisted of 9,600 cubic yards of clay and sand.

PROVINCE OF ONTARIO.

DREDGING AT BRONTE.

Between August 23rd and September 24th, 1904, the dredge 'Nipissing' worked at this place. Four cuts were made in the harbour between the piers, 150, 685, 480 and 600 feet long, 27 feet wide and to a depth of 14 feet at low water. The quantity of material removed was 15,262½ cubic yards of rock, clay and sand.

DREDGING AT COBOURG.

The dredge 'St. Lawrence' (leased) worked at this place from October 12th to November 15th, 1904, the close of navigation. The work consisted in deepening between the east and centre piers. Two cuts were made from the entrance to the breakwater, 1,000 feet long each, 30 feet wide and to a depth of 14 feet at low water. Two other cuts were made along the north and east pier, in the inner basin, 200 and 100 feet long, 30 feet wide and to a depth of 14 feet at low water.

The amount of material removed at this place was 18,360 cubic yards of sand and clay.

DREDGING AT COLLINGWOOD.

Operations were performed at this place between July 1st and November 30th, 1904, the close of navigation, by the dredge 'No. 7 Coghill' (leased). The work consisted in deepening the harbour in front of the docks and at entrance to pond. Five cuts were made: 451, 790, 198, 320 and 690 feet long, to an average width of 25 feet and to a depth of 8 feet at low water. All the material removed was cast over.

About 34,857 cubic yards of clay and boulders were removed.

Dredge 'No. 1 C. S. Boone' worked at this place under contract, from June 24th to 30, 1905, the end of the fiscal year. One cut was made, in the same location as the previous season, 332 feet long, 24 feet wide and 9 feet deep at low water

The material removed was 3,576 cubic yards of rock, gravel, mud and slabs.

Dredge 'No. 14' also worked at this place under contract, from June 3rd to 30th, 1905.

Removed 19,170 cubic yards of rock and mud.

DREDGING AT CUMBERLAND.

Dredge 'T. F. M. No. 1' (leased) worked at this place from November 15th to 18th, 1904, the close of navigation. One cut was made in front of the ferry wharf, 80 feet long, 22 feet wide and 7½ feet deep at low water.

1,150 cubic yards of boulders were removed.

DREDGING IN GRAND RIVER.

Grand river runs into Lake Erie after passing through the Counties of Brant and Haldimand.

Authority was given on June 11, 1904, to employ Mr. C. S. Boone's dredging plant to do the necessary dredging in the Grand river, at Dunnville.

Work was continued after July 1st and completed on September 24th. The dredge worked 645 hours removing 31,828 cubic yards of material. Of the hours worked, 245 hours time was expended in casting over material at Sunfish Creek for which no yardage was returned.

DREDGING AT GODERICH.

The dredge 'Arnoldi' worked at this place from June 5 to 24, 1905, and removed 10,015 cubic yards of sand.

DREDGING AT HAILEYBURY.

From May 30th to June 3rd, 1905, the dredge 'Queen' worked at this place, removing two sunken piers with about 400 cubic yards of stone filling.

Also 285 cubic yards of sand, clay and stone.

DREDGING AT HAMILTON.

Operations were performed at this place between July 1 and August 23, and also from September 27 to November 15, 1904, the close of navigation, by the dredge 'Nipissing.' Five cuts were made at the Turbine Company's wharf, 350, 375, 50, 45 and 150 feet long, 30 feet wide and 14 feet deep at low water. One other cut was made at the International Harvester Company's dock, 1,050 feet long, 30 feet wide and 16 feet deep at low water. Ten cuts were also made at McKay's wharf, McIlwraith's wharf and Brown's wharf, 350, 120, 250, 200, 200, 120, 250,180, 250 and 100 feet long, 30 feet wide and to a depth of 14 feet at low water. The total quantity of material removed consisted of 48,862½ cubic yards of clay and sand.

DREDGING AT HAWKESBURY.

From July 1 to August 16, 1904, the dredge 'Little Giant' (leased), worked at this place. Four cuts were made in front of Higginson's wharf, leading out to the main channel, 500 feet long each, 26 feet wide and to a depth of 7 feet at low water.

The quantity of material removed was 18,355 cubic yards of hardpan and stone.

On June 2, operations were resumed at this place by the same dredge under contract, continuing the work of widening and deepening the channel between the town wharfs and the main channel.

9,740 cubic yards of hardpan, boulders and sand were removed.

DREDGING IN INDIAN RIVER.

Indian River runs through the township of Douro, Dummer and Otonabee, from Stoney lake to Rice lake.

At the last session of parliament, the sum of $3,000 was appropriated to dredging a channel at this place, and authority was given on September 10, to expend same.

Work was commenced on May 18, and is still in progress.

Total expenditure for fiscal year, 1904-05 :—

Labour and superintendence	$ 667 75
Materials	601 56
	$1,269 31

DREDGING IN KAMINISTQUIA RIVER.

During the first part of last fiscal year the channel of the river was widened and deepened in places to a depth of 22 feet below zero of gauge, from Mission river up to the Canadian Northern railway coal docks, at West Fort William.

Dredging was also done in front of the Ogilvie elevator and the Canadian Pacific Railway elevators A. B. C.

The entrance channel to the River Kaministiquia was widened and deepened, and all dredging done to 22 feet below zero.

A channel, 140 feet in width and 22 feet in depth below zero, was dredged in front of the Empire Elevator Company's wharf.

During the past winter, soundings were taken in the entrance channel to the river from the Canadian Pacific railway coal docks for a distance out of 6,200 feet; it was found that considerable filling had taken place since dredging was done, and that the channel will require to be cleaned up every season.

The total amount of material removed during 1904-05, is 585,806 cubic yards.

DREDGING AT KINCARDINE.

The dredge 'Arnoldi' worked at this place from June 28 to 30, 1905, deepening the harbour, and removed 670 cubic yards of sand.

DREDGING AT KINGSTON.

Between September 15 and November 23, 1904, the close of navigation, the dredge 'Sir Richard' worked at the place making seven cuts in front of the Kingston and Pembroke Railway coal dock. The lengths of the cuts made were 50, 80, 110, 140, 170, 200 and 230 feet long. Two cuts were also made in front of Anglin's dock, leading out to the channel, 340 and 180 feet long. All the above cuts were made to a width of 25 feet and to a depth of 12 to 14 feet at low water. The quantity of material removed consisted of 25,900 cubic yards of hardpan and clay.

DREDGING AT KINGSTON.

Work was resumed at this place by the dredge 'Nipissing' on May 22, and continued there up to June 30, 1905, the end of the fiscal year. The work was done on the approach and in front of the Kingston and Pembroke Railway Company's coal dock. Eight cuts were made: 200, 500, 500, 500, 200, 100, 150 and 150 feet long, all dredged to a width of 30 feet and to a depth of 14 feet at low water. The material removed was 19,240 cubic yards of hard-pan, boulders, clay and sand.

DREDGING AT LITTLE CURRENT.

Little Current, a town of 300 inhabitants is situated on the east shore of Manitoulin island, on the north channel of Georgian bay.

At the last session of parliament, the sum of $22,000 was appropriated for deepening steamer channel at this place, and authority was given on May 23 to expend the amount.

An agreement was entered into with Mr. C. S. Boone to do this work. Dredging was commenced on September 1 last, and closed for season, November 1, and was resumed on April 4 and continued until June 30, but only drilling plant was employed at this place since April.

The dredging plant worked 498½ hours removing 20,075½ cubic yards rock, scow measurement.

Total expenditure for fiscal year, 1904-05, $38,124.50.

DREDGING AT MIDLAND.

Dredging operations were performed at this place by dredge 'No. 9,' between May 8 and 11, and between June 17 and 30, 1905, deepening in front of the Grand Trunk Railway elevator in the Midland harbour. 7,800 cubic yards of hardpan, boulders, clay and sand were removed.

DREDGING IN NEEBING RIVER.

Dredge 'No. 6' worked at this place under contract, from June 1 to 30, 1905, deepening the channel.

The material removed consisted of 50,514 cubic yards of quicksand, clay and mud.

The Hydraulic dredge also worked at this place from May 29 to June 30, 1905, deepening the channel to 14 feet at low water. 8,148 cubic yards of sand were removed.

DREDGING AT NEW LISKEARD.

Dredge 'Queen' worked at New Liskeard, between July 1 and 30, and from August 13 to November 15, 1904, the close of navigation. Seven cuts were made in the channel where left off the previous year, 1,200, 500, 500, 1,500, 150, 800 and 300 feet long. All cuts were made to a width of 26 feet and a depth of from 5 to 9 feet at low water. 21,740 cubic yards of clay were removed.

The dredge 'Queen' resumed work at this place, between June 5 and 30, 1905, the close of the fiscal year. One cut was made at the entrance of the Wabi river, 1,025 feet long, 22 feet wide and 9 feet deep at low water. The quantity of material removed was 7,420 cubic yards of sand, stone and clay.

DREDGING AT OWEN SOUND.

From May 18 to June 24, 1905, the dredge 'Frank' (leased), worked at this place in front of the Grand Trunk Railway freight sheds and in front of the Canadian Pacific Railway elevator. Two cuts were made, 1,350 and 875 feet long, 23 feet wide and 23 feet deep at low water.

34,965 cubic yards of clay and sand were taken out.

DREDGING AT PENETANGUISHENE.

Dredge 'No. 9' operated here under contract, from June 1 to 16, 1905, and removed 12,000 cubic yards of hardpan, boulders, clay and sand.

Dredge 'No. 4' also worked at this place from May 8 to June 24, 1905, removing 24,142 cubic yards of gravel.

DREDGING AT PETERBORO (OTONABEE RIVER).

The dredge plant used for this work was borrowed from the Department of Railways and Canals. It was necessary to dismantle part of the dredge, in order to bring her up beneath the fixed bridges on Hunter street and that of the Canadian Pacific railway. Work was commenced immediately above the Hunter street bridge, on the west side of the river. A channel 35 feet wide and varying in depth from 8 feet at the lower end to 6 feet at the upper end. This channel was carried from the Hunter street bridge to the entrance of the tail race, from the American Cereal Company's power house, a distance of about 600 feet. A great part of this excavation was a very tough hardpan, which had to be blown at several places in order to loosen it up. The entrance to the American Company's tail race was also excavated for a distance of 286 feet, and a width of 60 feet and a depth of about 7 feet. All this material was hardpan and rock, all of which had to be blown before it could be handled with the dredge. All the material from these two cuts was cast on the side.

As there was no more room to dispose of the excavated material on the west side, the dredge was taken across the river to the east side. In crossing over a channel had to be dredged in order to float the dredge over. A channel was excavated on the east side for a distance of 900 feet, and a width of 35 feet and a depth of 6 to 8 feet. The material at the north end was cast on the side of the river and taken away with

horses and scrapers. It was not possible to cast on the side of the river from about half way down on the east side, so a track and dump cars were used to take the excavated material away. This material was drawn up on an incline by means of a hoisting engine and dumped on the land of the American Cereal Company. The quantity of material dredged up to June 30 last, was 17,600 cubic yards.

DREDGING AT PICKERING.

Dredge 'Sir Richard' worked at this place between June 8th and 30th, 1905, the close of the fiscal year. Two cuts were made between the piers; 750 feet long each, 25 feet wide and 12 feet deep at low water. Two other cuts were made at entrance to pier: 50 feet long each, 25 feet wide and 12 feet deep at low water.

12,500 cubic yards of hardpan, clay and sand were removed.

DREDGING AT POINT EDWARD.

Point Edward is situated at the head of the St. Clair river, in the County of Lambton, adjoining the town of Sarnia, 61 miles west of London. It is a port of call for the Northern Navigation Company's steamers, and for many of the large craft plying on the upper lakes. A large quantity of grain and general merchandise is brought in and shipped by the Grand Trunk railway from this point, also a quantity of ore and steel rails are handled here. It is therefore important to have sufficient depth of water, along the dock front, to permit the entrance of these deep draft vessels.

Authority was given on April 25th, 1904, and, on June 24th, 1904, to dredge the approach to the Grand Trunk elevator dock. This work was performed by the Sarnia Bay Salvage and Towing Co., at the rate of $15 per hour, and the expenditure amounted to $6,377.44. This work was performed during the months of October and November, 1904.

On May 18th, 1905, further authority was given for the dredging of a channel, 150 feet wide, to a depth of 21 feet below low water level, from the existing deep water, which was 900 feet south of the Grand Trunk Railway Company's dock, to a point about 400 feet north of the Grand Trunk Railway freight sheds, to provide sufficient water for the larger boats to approach these docks in safety.

The above work was performed by the Sarnia Bay Lumber, Timber and Salt Co., operations were commenced on May 23, 1905, and up to June 30, 1905, 23,870 cubic yards of sand were removed.

The total expenditure at this point during the fiscal year 1904-05 was $24,201.29.

DREDGING AT PORT ARTHUR.

The bar in entrance channel has been removed, and there is at present sufficient depth of water for all vessels coming to the port.

During the past winter soundings were taken in the harbour over the dredged areas; and soundings and borings in the proposed channels to Neebing and McIntyre rivers.

Dredging was commenced May 28th, to make a channel to site of proposed Canadian Northern Railway's coal and ore dock and smelter works, and up to June 30th, 53,551 cubic yards were removed. Since that date dredging there has been abandoned owing to change in site of coal and ore docks.

The total amount of material removed during the past fiscal year was 521,368 cubic yards.

DREDGING AT PORT BRUCE.

The dredge 'Ottawa' worked here under contract from June 5th to 16th, 1905, deepening the harbour.

Removed 4,133 yards of boulders, gravel, clay and sand.

DREDGING AT PORT BURWELL.

Dredging operations were performed at this place between June 8th and 30th, 1905, by dredge 'No. 2' under contract.

Removed 18,990 cubic yards of fine sand.

DREDGING AT PORT ELGIN.

Port Elgin, in the County of Bruce, is situated on the shore of Lake Huron, five miles southerly from Southampton and twenty-six miles northerly from Kincardine, on the Wellington, Grey and Bruce division of the Grand Trunk Railway.

At the last session of parliament, the sum of $2,000 was appropriated for dredging in the inner basin at this point; the work was performed by the Marlton Dredging Company, of Goderich, from July 2 to August 1, inclusively. The plant worked 249¼ hours at $8 per hour, and removed 18,390 cubic yards of clay and sand.

DREDGING AT PORT HOPE.

Between May 15 and June 5, 1904, the dredge 'Sir Richard' worked at this place. Three cuts were made between the piers at entrance of harbour, through a sand bar; 450, 350 and 300 feet long, 25 feet wide and 12 feet deep at low water. Two cuts were also made in the new harbour on the approach and in front of Clark's coal sheds; 250 and 150 feet long, 25 feet wide and 12 feet deep at low water.

The material removed was 6,550 cubic yards of hard-pan, clay and sand.

DREDGING AT PORT PERRY.

Port Perry, a town of 1,000 inhabitants, is situated on the western shore of Lake Scugog, in the County of Ontario, and on the Whitby and Port Perry branch of the Grand Trunk railway.

At the last session of parliament, the sum of $3,200 was appropriated for dredging at this place, and authority was given on July 22, to expend the amount.

Work was started on September 15, and was completed October 27, and consisted in the removal of some 11,000 cubic yards of material in front of the town and railway wharfs and was performed by one of the government dredges, belonging to the Department of Railways and Canals.

Total expenditure for fiscal year 1904-05 :—

Wages (including crews employed on dredge, tug, scow) and superintendence	$ 552 63
Sustenance of crews, towage, fuel, &c.	811 83
	$1,364 46

DREDGING AT PORT STANLEY.

Between October 6 and November 30, 1904, the close of navigation, the dredge 'Meade' (leased), worked at this place. Five cuts were made, 700, 400, 300 and two 250 feet long, all to a width of 35 feet, inside the piers in the harbour. Two cuts were also made outside of pier, 400 and 550 feet long and 30 feet wide. One other cut was

made in the slip, 200 feet long and 25 feet wide. All these cuts were made to a depth of 18 feet at low water.

The quantity of material removed was 36,400 cubic yards of clay and sand.

This same dredge continued the work at this place from April 10 to June 30, 1905, the end of the fiscal year. Six cuts were made, 203, 500, 2,645, 2,645, 115 and 325 feet long, all to a width of 25 feet and a depth of from 15 to 20 feet at low water. The work was done alongside the west and east piers and near the lighthouse.

89,476 cubic yards of boulders, gravel, clay and sand were removed.

DREDGING AT RONDEAU.

The dredge 'Ontario' worked at this place from July 1 to November 30, 1904, the close of navigation. Three cuts were made through the bar outside the piers, 75, 750 and 325 feet long, 25 feet wide and 17 feet deep at low water. This work being completed gives a clear entrance to the harbour 200 feet wide. Five cuts were made inside the harbour, at north end of piers, 375, 375, 430, 450 and 490 feet long, 25 feet wide and 17 feet deep at low water. One cut was also made 115 feet long, 20 feet wide and 14 feet deep at low water, removing crib at east side of east pier. Two other cuts were also made in slip of Père Marquette railway, in front of their new coal dock; first cut, 716 feet long and 25 feet wide; second cut, 365 feet long, 20 feet wide; both cuts were made to a depth of 22 feet at low water. The material removed at this place was 46,370 cubic yards of sand and stone.

Work was also performed at this place by the dredge 'Ontario' from June 13 to 30, 1905, the close of the fiscal year. Two cuts were made in front of Lake Erie Coal Company's wharf, 500 and 400 feet long, 24 feet wide and to a depth of 17 feet at low water. The material removed was 4,680 cubic yards of sand.

Dredge 'Ottawa' worked at this place under contract, from June 20 to 30, removing 11,850 cubic yards of boulders, gravel, clay and sand.

DREDGING AT SARNIA.

The dredge 'E. Hall No. 1' (leased) worked at this place between June 19 and 29, 1905, the close of the fiscal year. Two cuts were made alongside the elevator, 350 and 450 feet long, 25 feet wide and 21 feet deep at low water.

The quantity of material removed was 9,520 cubic yards of clay and sand.

DREDGING IN SAUGEEN RIVER.

Dredging operations were performed at this place between June 1 to 30, 1905, by dredge 'No. 15,' under contract, deepening between the piers and in the harbour.

28,507 cubic yards of hardpan, clay and boulders were removed.

DREDGING IN TRENT RIVER.

Between May 25 to 31, 1905, the dredge 'Trenton' worked at this place, making one cut 1,702 feet long, 30 feet wide and 10 feet deep at low water.

6,650 cubic yards of boulders, clay and mud were removed.

DREDGING AT TRENTON.

The dredge 'Trenton' (leased), worked at this place from July 1 to August 4, 1904, making a channel through a mud and stone shoal opposite the mouth of the River Trent. One cut was made 1,510 feet long, 30 feet wide and to a depth of 10 feet at low water. 37,525 cubic yards of mud and stones were removed.

This dredge continued work at this place between June 1 and 30, 1905, the end of the fiscal year, completing the work done the previous season. One cut was made 2,751 feet long, 30 feet wide and 12 feet deep at low water.

20,235 cubic yards of boulders, clay and mud were removed.

DREDGING AT WAUBAUSHENE AND FESSERTON.

Waubaushene and Fesserton are situated at the southern end of Georgian bay.

Authority was given on October 19 last to expend the sum of $1,200 on improvements to steamer channel between these places.

Dredging was commenced by the Penetanguishene dredging plant on October 24, and ceased for the winter on November 10. The dredge worked 163 hours, removing 4,484 cubic yards.

Total expenditure for fiscal year 1904-05:

Dredging	$ 1,304 00
Inspection	57 85
	$ 1,361 85

DREDGING AT WIARTON.

Dredging at this place was performed by the dredge 'Frank' under contract on June 29 and 30, 1905.

The material removed consisted of 1,400 cubic yards of clay and sand.

DREDGING AT WHITBY.

Work was performed at this place by the dredge 'Trenton' (leased), from August 17 to November 14, 1904, the close of navigation. Work was done between the east and west piers alongside the north pier, and in the slip along the front of the elevator. Ten cuts were made: four 1,650, one 1,550, one 1,400, one 875, one 800 and two 300 feet long. All these cuts were made to a width of 30 feet and to a depth of 16 feet at low water.

101,270 cubic yards of clay and sand were removed.

DREDGING AT WOLFE ISLAND.

Operations were performed by the dredge 'Sir Richard' at this place from July 5 to September 10, 1904, making 12 cuts in front of the ferry dock, 240, 250, 260, 270, 280, 290, 300, 310, 500, 500, 150 and 150 feet long, 25 feet wide and to a depth of 10 feet at low water. The material removed consisted of 31,300 cubic yards of hardpan and clay.

SESSIONAL PAPER No. 19

STATEMENT of Expenditure and quantities of material removed by the different Dredges, at different localities, in Ontario and Quebec, during the fiscal year ended June 30, 1905.

Dredge.	Location.	Yards removed.	Character of soil.	Expenditure.	Cost per yard.
				$ cts.	cts.
Challenge	Ottawa River	7,940	Hardpan, boulders and sand	5,798 59	32 5/8
Ontario	Rondeau	51,050	Sand, clay and stone	10,858 76	21 1/4
Nipissing	Hamilton	48,862	Hardpan, boulders, clay, sand and fine sand	9,248 57	11 1/10
"	Bronte	15,262			
"	Kingston	19,240			
Queen	Ville Marie	2,625	Sand, clay and stone	10,458 68	32 7/10
"	New Liskeard	29,160			
"	Haileybury	285			
Sir Richard	Wolfe Island	31,300	Hardpan, clay and sand	7,582 67	9 7/10
"	Kingston	25,900			
"	Port Hope	6,950			
"	Pickering	12,500			
Richelieu	Barbotte River	3,200	Hardpan, boulders, clay and sand	5,209 09	15 2/3
"	Ile-aux-Noix	7,150			
"	St. Antoine	6,300			
"	Beloeil	570			
"	St. Denis	6,900			
"	St. Charles	2,620			
"	Lacolle	2,300			
"	St. Johns	2,712			
"	Chambly	950			
St. Louis	St. Aime	12,015	Clay, sand and fine sand	3,509 98	12 1/5
"	Yamaska	8,458			
"	Sorel	810			
"	Ile-du-Pas	3,947			
"	Pierreville	3,540			
Nithsdale	St. Jean des Chaillons	6,650	Clay, stone and sand	11,030 15	53 1/10
"	St. Michel	9,240			
"	Pt. Platon	1,750			
"	Berthier en Bas	3,150			
International	Quebec	77,300	Hardpan, boulders and sand	14,670 71	11 1/2
"	Penticost	48,000			
"	Chicoutimi	1,500			
No. 6	Quebec	21,120	Boulders and sand	4,874 08	23 1/10
Progress	Sorel	240	Clay, stone and sand	9,488 60	18 2/3
"	River Ouelle	16,000			
"	Murray Bay	15,300			
"	Quebec	18,720			

STATEMENT of Expenditure and quantities of materials, &c.—*Continued.*

Dredge.	Location.	Yards Removed.	Character of Soil.	Expenditure.	Cost per yard.
				$ cts.	cts.
T. F. M. No. 1	Calumet	9,400	Boulders, clay, sand and sawdust	12,606 10	20¾
"	Grenville	15,750			
"	Cumberland	1,150			
"	Blanche Shoals	34,450			
Little Giant	Hawkesbury	28,095	Hardpan, boulders and sand	15,847 65	14½
"	St. Andrews	7,560			
No. 4 Daly	L'Assomption	62,680	Gravel, clay, stone and mud	9,390 00	15
Otto	River Jesus	31,565	Hardpan, boulders, gravel, clay, sand and stone	6,557 37	16⅜
"	Terrebonne	5,800			
"	Charlemagne	2,000			
No. 7 Coghill	Collingwood	34,857	Clay, boulders and stone	7,785 00	22⅓
No. 4 Cohen	Rigaud	35,652	Hardpan, boulders, clay and sand	10,589 80	27¾
"	Como	2,496			
Trenton	Trenton	57,760	Boulders, clay, sand and mud	26,845 68	16⅛
"	Whitby	101,270			
"	Trent River	6,650			
Central City	Chateauguay	16,320	Hardpan, boulders and clay	8,082 00	28
"	Beauharnois	12,560			
General Meade	Port Stanley	125,876	Boulders, gravel, clay and sand	21,322 09	16⅞
St. Lawrence	Cobourg	18,360	Clay, sand and fine sand	4,770 50	17
"	Yamaska	9,600			
Ottawa	Rondeau	11,850	Boulders, gravel, clay and sand	2,877 05	18
"	Port Bruce	4,133			
Frank	Owen Sound	34,965	Clay and sand	5,615 95	15½
"	Wiarton	4,400			
Chateauguay	Rigaud	11,060	Boulders, clay and gravel	3,587 00	32⅜
E. Hall No. 1	Point Edward	23,870	Clay and sand	6,965 30	20⅝
"	Sarnia	9,520			

STATEMENT of Expenditure and quantities of materials, &c.—*Continued.*

Dredge.	Location.	Yards Removed.	Character of Soil.	Expenditure.	Cost per yard.
				$ cts.	cts.
Pontiac	Batiscan River	4,080	Clay, stone and sand	3,238 56	14
"	Doucet's Landing	19,043			
No. 6 McDonald	River du Loup	32,300	Clay, sand and logs	4,257 90	12⅞
No. 5 McDonald	Doucet's Landing	23,501	Boulders, clay and sand	2,664 11	9⅛
"	Three Rivers	120			
No. 5 Bowman	Port Arthur	110,667	Clay, sand and mud	15,619 38	14⅛
No. 6 Bowman	Port Arthur	28,657	Quick sand, clay and mud	18,066 04	22¾
"	Neebing River	50,514			
No. 9 O. S. D. & Cons. Co	Midland	7,800	Hardpan, boulders, clay and sand	4,661 00	23¼
"	Penetang	12,000			
No. 1 Boone	Collingwood	3,576	Rock, gravel, mud and slabs	1,126 45	31½
No. 4 O. S. D. & Cons. Co	Penetang	21,142	Gravel	4,265 89	17⅜
Duke of York	St. Maurice River	47,646	Clay, stone and sand	6,472 87	13⅝
Quebec	L'Assomption	14,710	Clay	2,093 19	14¼
No. 4 G. Cons. Co.	Graham	18,550	Clay	2,448 60	13¼
No. 2 D. D. & C. Co	Port Burwell	18,990	Fine sand	5,776 00	30⅜
Arnoldi	Goderich	10,015	Sand	2,737 25	25
"	Kincardine	670			
Hydraulic	Neebing River	8,148	Quick sand	2,362 92	29
Kingsford	Port Arthur	30,041	Clay, sand and fine sand	5,869 02	19½
No. 1 A. F. B.	Port Arthur	40,400	Clay, sand and mud	9,100 00	22½

STATEMENT of Expenditure and quantities of materials, &c.—*Concluded.*

Dredge.	Location.	Yards Removed.	Character of Soil.	Expenditure.	Cost per yard.
				$ cts.	cts.
No. 15 A. F. B.	Saugeen River	26,676	Hardpan, clay, stone and boulders	16,083 40	60 3/4
No. 14 Boone	Collingwood	19,170	Rock and mud	41,730 91	2.17 15/16

Classification and Disbursements of the Dredges during the Year ended June 30, 1905

DREDGE 'CHALLENGE.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	321 46	456 35	290 00	302 50	423 58	87 00	60 00			14 80	212 90	355 00	2,503 79
Coal			334 72		10 24							257 15	602 11
Provisions	130 77		121 80	135 00							31 76		419 33
Stores	21 24	16 25	16 75		3 10								57 34
Equipment	9 32		88 23									203 92	301 47
Repairs		250 35	74 72					347 78				481 40	1,154 25
Towage			57 00										57 00
Contingencies	5 30			9 35	43 70		630 00					14 95	703 30
Totals	488 09	703 15	983 22	446 85	480 62	87 00	690 00	347 78		14 80	244 66	1,312 42	5,798 59
Working expenses	488 09	452 80	908 50	446 85	480 62	87 00	690 00			14 80	244 66	831 02	4,644 34
Repairs, ordinary		250 35	74 72					347 78				481 40	1,154 25
Totals	488 09	703 15	983 22	446 85	480 62	87 00	690 00	347 78		14 80	244 66	1,312 42	5,798 59

DREDGE 'ONTARIO.'

Wages	391 97	401 05	425 00	307 67	513 59		183 87	120 00	199 11	709 16	457 79	546 18	4,255 39
Coal	221 07		1,171 75	183 00	210 00	207 37						89 95	2,083 14
Provisions	121 45	117 39	123 40	123 58	150 24						113 90	308 72	1,058 68
Stores	93 23		72 36	23 81		11 85	18 12				98 55	150 51	468 43
Equipment	10 00		36 30			29 07						143 29	218 66
Repairs	225 12		139 57	10 00		15 98						1,000 54	1,391 21
Contingencies	19 38		5 25	11 60		43 15		43 55				1,260 32	1,383 25
Totals	1,082 22	518 44	1,973 63	659 66	873 83	307 42	201 99	163 55	199 11	709 16	670 24	3,499 51	10,858 76
Working expenses	857 10	518 44	1,834 06	649 66	773 83	291 44	201 99	163 55	199 11	709 16	670 24	2,498 97	9,467 55
Repairs, ordinary	225 12		139 57	10 00		15 98						1,000 54	1,391 21
Totals	1,082 22	518 44	1,973 63	659 66	873 83	307 42	201 99	163 55	199 11	709 16	670 24	3,499 51	10,858 76

Classification of Disbursements of the Dredges during the Year ended 30th June, 1905.

DREDGE 'NIPISSING.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	404 35	392 26	410 00	418 73	410 00	150 76	265 00	278 00	382 69	284 17	346 29	504 32	4,246 57
Coal	542 25	118 12	255 05	352 66	.....	242 20	61 60	.....	.....	.....	29 00	584 75	2,185 63
Provisions	153 30	114 48	123 00	123 00	132 75	.....	59 56	.....	.....	.....	100 00	173 06	979 15
Stores	85 45	33 00	74 08	12 25	.....	13 45	.....	.....	14 73	.....	152 29	170 03	555 28
Equipment	.....	.....	.....	.....	.....	.....	.....	14 07	33 00	.....	.....	.....	47 07
Repairs	459 24	9 80	.....	33 28	.....	12 72	.....	79 15	261 52	.....	151 61	18 62	1,025 94
Pilotage	.....	.....	.....	.....	.....	25 90	.....	.....	.....	.....	.....	.....	25 90
Contingencies	28 30	19 10	6 45	8 00	.....	24 00	.....	46 95	6 50	.....	12 60	31 13	183 03
Totals	1,672 89	686 76	868 58	947 92	542 75	469 03	386 16	418 17	698 44	284 17	791 79	1,481 91	9,248 57
Working expenses	1,213 65	676 96	868 58	914 64	542 75	456 31	386 16	339 02	436 92	284 17	640 18	1,463 29	8,222 63
Repairs, ordinary	459 24	9 80	.....	33 28	.....	12 72	.....	79 15	216 52	.....	151 61	18 62	1,025 94
Totals	1,672 89	686 76	868 58	947 92	542 75	469 03	386 16	418 17	698 44	284 17	791 79	1,481 91	9,248 57

DREDGE 'QUEEN.'

Wages	445 00	445 00	444 00	456 98	533 75	.....	11 25	372 05	846 25	819 75	730 92	512 00	5,616 45
Coal	210 00	.....	262 50	98 75	.....	.....	.....	.....	.....	.....	.....	375 15	946 40
Provisions	137 00	141 19	150 75	135 00	151 80	.....	.....	74 78	197 59	207 00	139 19	135 00	1,469 30
Stores	61 50	.....	68 00	62 43	.....	.....	79 19	7 88	.....	.....	.....	113 18	392 18
Equipment	.....	.....	.....	25 14	.....	.....	.....	.....	.....	.....	.....	.....	25 14
Repairs	12 15	.....	34 82	262 14	160 34	47 30	.....	104 35	141 78	.....	275 92	409 16	1,447 96
Towage	.....	.....	.....	108 00	.....	.....	55 00	.....	.....	.....	.....	.....	163 00
Contingencies	60 20	25 00	20 00	.....	.....	51 20	108 34	27 95	44 55	.....	.....	88 01	425 25
Totals	925 85	611 19	980 07	1,148 44	845 39	98 50	253 78	587 01	1,230 17	1,026 75	1,146 03	1,632 50	10,485 68

Working expenses	913 70	611 19	945 25	886 30	685 05	51 20	253 78	482 66	1,088 39	1,026 75	870 11	1,273 34	9,037 72
Repairs, ordinary	12 15		34 82	262 14	160 34	47 30		104 35	141 78		275 92	409 16	1,447 96
Totals	925 85	611 19	980 07	1,148 44	845 39	98 50	253 78	587 01	1,230 17	1,026 75	1,146 03	1,632 50	10,485 68

DREDGE 'SIR RICHARD.'

Wages	357 90	410 81	404 41	287 99	375 00	90 00	90 00	90 00	157 26	292 92	522 48	545 50	3,624 18
Coal	289 20	221 37	136 40	502 00		136 30						467 33	1,752 60
Provisions		108 39	94 10	117 19	111 00		20 90						451 58
Stores	61 70	19 05	185 00	24 77		9 60			105 40		47 45	87 23	540 20
Equipment	12 00		4 65					8 15				130 08	154 88
Repairs	77 41	56 38	51 39	73 78		138 80		21 83	63 25		384 89	67 05	934 78
Contingencies	8 30	7 65	80 60			13 35		2 88				11 67	124 45
Totals	806 51	823 65	956 55	1,005 64	486 00	388 05	110 90	122 86	325 91	292 92	954 82	1,308 86	7,582 67
Working expenses	729 10	767 27	905 16	931 86	486 00	249 25	110 90	101 03	262 66	292 92	569 93	1,241 81	6,647 89
Repairs, ordinary	77 41	56 38	51 39	73 78		138 80		21 83	63 25		384 89	67 05	[illegible]
Totals	806 51	823 65	956 55	1,005 64	486 00	388 05	110 90	122 86	325 91	292 92	954 82	1,308 86	[illegible]

DREDGE 'RICHELIEU.'

Wages	395 00	389 35	595 00	395 00	237 00	54 74	20 00	190 26	284 75	228 17	545 48	395 00	3,529 75
Coal	52 90	8 20	7 05	7 00	5 30						8 25	10 77	99 47
Provisions	158 58	128 54	129 15	123 00	136 40	21 98	21 66				16 00	133 00	868 31
Stores	32 75	6 11	74 54								102 98	20 80	238 18
Equipment					11 40							9 90	21 30
Repairs	15 21	3 66	20 06	5 69	3 10	1 88					37 39	178 54	265 47
Towage			10 00		12 00							22 00	44 00
Contingencies			13 80		13 80	8 00		70 00			1 41	35 60	142 61
Totals	655 44	535 80	649 60	530 69	419 00	86 60	41 66	260 26	284 75	228 17	711 51	805 61	5,209 09
Working expenses	640 23	532 20	629 54	525 00	415 90	84 72	41 66	260 26	284 75	228 17	674 12	627 07	4,943 62
Repairs, ordinary	15 21	3 60	20 06	5 69	3 10	1 88					37 39	178 54	265 47
Totals	655 44	535 80	649 60	530 69	419 00	86 60	41 66	260 26	284 75	228 17	711 51	805 61	5,209 09

CLASSIFICATION OF DISBURSEMENTS of the Dredge during the Year ended 30th June, 1905.

DREDGE 'ST. LOUIS.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	370 00	376 00	369 00	374 50	405 65						392 33	374 63	2,662 11
Provisions	103 00	120 00	122 60	123 00	123 00						119 13	123 00	833 73
Stores	1 25												1 25
Equipment		1 25											1 25
Repairs			4 89										4 89
Contingencies			1 35				3 75					1 65	6 75
Totals	474 25	497 25	497 84	497 50	528 65		3 75				511 46	499 28	3,509 98
Working expenses	474 25	497 25	492 95	497 50	528 65		3 75				511 46	499 28	3,505 09
Repairs, ordinary			4 89										4 89
Totals	474 25	497 25	497 84	497 50	528 65		3 75				511 46	499 28	3,509 98

DREDGE 'NITHSDALE.'

Wages	405 00	405 00	205 00	398 54	229 50							316 64	1,959 68
Coal			284 75	207 95	4 25							252 36	749 31
Provisions	110 00	110 00	110 00	108 71	74 80							111 37	624 88
Stores		6 60		9 93	1 60							33 38	51 51
Repairs				13 65								49 12	62 77
Contingencies	1,240 00	1,240 00	1,200 00	680 00								1,990 00	7,590 00
Totals	1,755 00	1,761 60	1,799 75	1,978 78	990 15							3,752 87	11,038 15
Working expenses	1,755 00	1,761 60	1,799 75	1,965 13	990 15							2,703 75	10,975 38
Repairs, ordinary				13 65								49 12	62 77
Totals	1,755 00	1,761 60	1,799 75	1,978 78	990 15							2,752 87	11,038 15

DREDGE 'INTERNATIONAL.'

1917—A. 18														
Wages	1,078 23						252 05	300 96		708 67	831 03	1,170 91	4,341 85
Coal	661 91	440 28										362 19	1,464 38
Provisions											243 94	454 38	698 32
Stores					1 32					102 25		330 33	433 90
Equipment				11 50	2 35		8 20					69 00	91 05
Repairs			105 79		63 84	253 87						120 93	544 43
Towage			1,750 00	1,800 00			202 00	23 00				1,583 73	5,358 73
Contingencies	1,338 05											400 00	1,738 05
Totals	3,078 19	440 28	1,855 79	1,811 50	67 51	253 87	462 25	323 96		810 92	1,074 97	4,491 47	14,670 71
Working expenses	3,078 19	440 28	1,750 00	1,811 50	3 67		462 25	323 96		810 92	1,074 97	4,370 54	14,126 28
Repairs, ordinary			105 79		63 84	253 87						120 93	544 43
Totals	3,078 19	440 28	1,855 79	1,811 50	67 51	253 87	462 25	323 96		810 92	1,074 97	4,491 47	14,670 71

DREDGE No. 6, 'D. P. W.'

Wages									66 29	230 84	285 00	402 50	984 63
Coal												110 90	110 90
Provisions												297 00	297 00
Stores											80 25	137 06	217 31
Repairs			3 80				93 94					2,680 12	2,777 86
Towage												44 00	44 00
Contingencies										14 00	28 37	400 00	442 37
Totals			3 80				93 94		66 29	244 84	393 62	4,071 58	4,874 07
Working expenses									66 29	244 84	393 62	1,391 46	2,096 21
Repairs, ordinary			3 80				93 94					2,680 12	2,777 86
Totals			3 80				93 94		66 29	244 84	393 62	4,071 58	4,874 07

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ended 30th June, 1905—*Continued.*

DREDGE 'PROGRESS.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	565 65	701 12	707 50	698 12			2 00	147 10	152 52	393 33	485 68	621 16	4,474 18
Coal								229 50				1,390 97	1,620 47
Provisions		202 92	215 60	219 88								330 29	967 69
Stores										5 10	136 46	189 68	331 24
Equipment											25 00	1,783 64	1,808 64
Repairs		4 97				20 65	16 88				10 12	193 61	246 23
Towage												32 00	32 00
Contingencies						8 15							8 15
Totals	565 65	903 04	928 07	918 00		28 80	18 88	376 60	152 52	398 43	657 26	4,541 35	9,488 60
Working expenses	565 65	903 04	923 10			8 15	2 00	276 60	152 52	398 43	647 14	4,347 74	9,242 37
Repairs, ordinary			4 97			20 65	16 88				10 12	193 61	246 23
Totals	565 65	903 04	928 07	918 00		28 80	18 88	376 60	152 52	398 43	657 26	4,541 35	9,488 60

DREDGE 'T. F. M. No. 1.'

Wages	78 00	82 60	80 00	78 00	54 00							52 50	425 10
Towage							457 00						457 00
Contingencies	2,344 00	2,592 00	2,064 00	2,064 00	1,240 00							1,420 00	11,724 00
Totals	2,422 00	2,674 60	2,144 00	2,142 00	1,294 00		457 00					1,472 50	12,606 10
Working expenses	2,422 00	2,674 60	2,144 00	2,142 00	1,294 00		457 00					1,472 50	12,606 10
Totals	2,422 00	2,674 60	2,144 00	2,142 00	1,294 00		457 00					1,472 50	12,606 10

19—iv—18½

DREDGE 'LITTLE GIANT.'

Wages	65 00	68 00	78 00	78 00	36 00									62 50	387 50
Towage					280 00										280 00
Contingencies	2,376 00	2,608 00	2,368 00	2,002 20	864 00									4,951 95	15,170 15
Totals	2,441 00	2,676 00	2,446 00	2,080 20	1,180 00									5,014 45	15,837 65
Working expenses	2,441 00	2,676 00	2,446 00	2,080 20	1,180 00									5,014 45	15,837 65
Totals	2,441 00	2,676 00	2,446 00	2,080 20	1,180 00									5,014 45	15,837 65

DREDGE No. 4 'DALY.'

Wages	78 00	81 00	78 00	78 00	39 00										354 00
Contingencies	2,016 00	2,136 00	2,080 00	1,764 00	1,040 00										9,036 00
Totals	2,094 00	2,217 00	2,158 00	1,842 00	1,079 00										9,390 00
Working expenses	2,094 00	2,217 00	2,158 00	1,842 00	1,079 00										9,390 00
Totals	2,094 00	2,217 00	2,158 00	1,842 00	1,079 00										9,390 00

DREDGE 'OTTO.'

Wages	276 50	81 00	92 37	78 00											527 87
Contingencies	1,675 00	1,308 00	1,086 00	1,393 00	567 50										6,029 50
Totals	1,951 50	1,389 00	1,178 37	1,471 00	567 50										6,557 37
Working expenses	1,951 50	1,389 00	1,178 37	1,471 00	567 50										6,557 37
Totals	1,951 50	1,389 00	1,178 37	1,471 00	567 50										6,557 37

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ended June 30, 1905—*Continued.*

DREDGE No. 7 'COGHILL.'

ITEMS.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages	78 00	81 00	78 00	78 00	78 00								393 00
Contingencies	1,808 00	1,960 00	1,772 00	1,172 00	680 00								7,392 00
Totals	1,886 00	2,041 00	1,850 00	1,250 00	758 00								7,785 00
Working expenses	1,886 00	2,041 00	1,850 00	1,250 00	758 00								7,785 00
Totals	1,886 00	2,041 00	1,850 00	1,250 00	758 00								7,785 00

DREDGE No. 4 'COHEN & SONS.'

Wages	65 00	67 50	65 00	65 00	32 50								295 00
Towage			212 00		372 00								584 00
Contingencies	2,217 55	2,560 00	2,250 25	1,731 00	952 00								9,710 80
Totals	2,282 55	2,627 50	2,527 25	1,796 00	1,356 50								10,589 80
Working expenses	2,282 55	2,627 50	2,527 25	1,796 00	1,356 50								10,589 80
Totals	2,282 55	2,627 50	2,527 25	1,796 00	1,356 50								10,589 80

DREDGE 'TRENTON.'

| | | |

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ended June 30, 1905—*Continued.*

DREDGE 'ST. LAWRENCE.'

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages				67 50	55 00							38 00	160 50
Contingencies				1,520 50	1,170 00							1,920 00	4,610 00
Totals				1,587 50	1,225 00							1,958 00	4,770 50
Working expenses				1,587 50	1,225 00							1,958 00	4,770 50
Totals				1,587 50	1,225 00							1,958 00	4,770 50

DREDGE 'OTTAWA.'

Wages												30 00	30 00
Contingencies												2,847 05	2,847 05
Totals												2,877 05	2,877 05
Working expenses												2,877 05	2,877 05
Totals												2,877 05	2,877 05

DREDGE 'A. F. BOWMAN.'

Wages											36 00	78 00	114 00
Contingencies											1,737 02	3,764 93	5,501 95
Totals											1,773 02	3,842 93	5,615 95

Working expenses											1,773 02	2,842 93	5,615 95
Totals											1,773 02	3,842 93	5,615 95

DREDGE 'CHATEAUGUAY.'

Wages												62 50	62 50
Contingencies												3,524 50	3,524 50
Totals												3,587 00	3,587 00
Working expenses												3,587 00	3,587 00
Totals												3,587 00	3,587 00

DREDGE 'E. HALL' No. 1.

Wages											11 50	78 00	95 50
Contingencies											664 40	6,205 40	6,869 80
Totals											681 90	6,283 40	6,965 30
Working expenses											681 90	6,283 40	6,965 30
Totals											681 90	6,283 40	6.965 30

DREDGE PONTIAC 'W. J. POUPORE.'

Wages				75 00								12 50	87 50
Contingencies				2,539 06								612 00	3,151 06
Totals				2,614 06								624 50	3,238 56
Working expenses				2,614 06								624 50	3,238 56
Totals				2,614 06								624 50	3,238 56

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ended June 30, 1905—*Continued.*

DREDGE 'No. 6,' R. McDONALD.

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages											9 00	78 00	87 00
Contingencies												4,170 90	4,170 90
Totals											9 00	4,248 90	4,257 90
Working expenses											9 00	4,248 90	4,257 90
Totals											9 00	4,248 90	4,257 90

DREDGE 'No. 5,' R. McDONALD.

Wages												75 00	75 00
Contingencies												2,589 11	2,589 11
Totals												2,664 11	2,664 11
Working expenses												2,664 11	2,664 11
Totals												2,664 11	2,664 11

DREDGE 'No. 5,' A. F. BOWMAN.

Wages											51 00	75 00	126 00
Contingencies											4,830 70	10,662 68	15,493 38
Totals											4,881 70	10,737 68	15,619 38
Working expenses											4,881 70	10,737 68	15,619 38
Totals											4,881 70	10,737 68	15,619 38

DREDGE 'No. 6,' A. F. BOWMAN.

Wages	93 65	78 00	171 65
Contingencies	5,258 63	12,635 76	17,894 39
Totals	5,352 28	12,713 76	18,066 04
Working expenses	5,352 28	12,713 76	18,066 04
Totals	5,352 28	12,713 76	18,066 04

DREDGE 'No. 9,' O. S. DREDGE AND CONSTRUCTION COMPANY.

Wages	12 00	78 00	90 00
Contingencies		4,571 00	4,571 00
Totals	12 00	4,649 00	4,661 00
Working expenses	12 00	4,649 00	4,661 00
Totals	12 00	4,649 00	4,661 00

DREDGE 'No. 1,' C. S. BOONE.

Wages		18 00	18 00
Contingencies		1,108 45	1,108 45
Totals		1,126 45	1,126 45
Working expenses		1,126 45	1,126 45
Totals		1,126 45	1,126 45

DREDGE 'No. 4,' O. S. DREDGE AND CONSTRUCTION COMPANY.

Wages	63 65	77 10	140 75
Contingencies	1,935 30	2,189 84	4,125 14
Totals	1,998 95	2,266 94	4,265 89
Working expenses	1,998 95	2,266 94	4,265 89
Totals	1,998 95	2,266 94	4,265 89

Classification of Disbursements of the Dredges during the Year ended 30th June, 1905—*Continued.*

DREDGE 'DUKE OF YORK'.

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages											63 00	45 75	108 75
Contingencies											2,406 25	3,957 87	6,364 12
Totals											2,469 25	4,003 62	6,472 87
Working expenses											2,469 25	4,003 62	6,472 87
Totals											2,469 25	4,003 62	6,472 87

DREDGE 'QUEBEC' GENERAL CONSTRUCTION COMPANY.

Wages												86 75	86 75
Contingencies												2,006 44	2,006 44
Totals												2,093 19	2,093 19
Working expenses												2,093 19	2,093 19
Totals												2,093 19	2,093 19

DREDGE 'No. 4,' GENERAL CONSTRUCTION COMPANY.

Wages												57 50	57 50
Contingencies												2,391 10	2,391 10
Totals												2,448 60	2,448 60
Working expenses												2,448 60	2,448 60
Totals												2,448 60	2,448 60

DREDGE 'No. 2,' DOMINION DREDGE AND CONSTRUCTION COMPANY.

Wages	69 00	69 00	
Contingencies	5,697 00	5,697 00	
Totals	5,766 00	5,766 00	
Working expenses	5,766 00	5,766 00	
Totals	5,766 00	5,766 00	

DREDGE 'ARNOLDI,' MARLTON DREDGE COMPANY.

Wages	66 00	66 00	
Contingencies	2,671 25	2,671 25	
Totals	2,737 25	2,737 25	
Working expenses	2,737 25	2,737 25	
Totals	2,737 25	2,737 25	

DREDGE 'HYDRAULIC No. 3.'

Contingencies	2,362 92	2,362 92	
Totals	2,362 92	2,362 92	
Working expenses	2,362 92	2,362 92	
Totals	2,362 92	2,362 92	

DREDGE 'KINGSFORD,' A. F. BOWMAN.

Wages	75 00	78 00	153 00
Contingencies	3,036 00	2,680 02	5,716 02
Totals	3,111 00	2,758 02	5,869 02
Working expenses	3,111 00	2,758 02	5,869 02
Totals	3,111 00	2,758 02	5,869 02

CLASSIFICATION OF DISBURSEMENTS of the Dredges during the Year ended June 30, 1905—*Concluded.*

DREDGE 'No. 1,' A. F. BOWMAN.

Items.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Wages											108 00	104 00	212 00
Contingencies											2,286 24	6,601 76	8,888 00
Totals											2,394 24	6,705 76	9,100 00
Working expenses											2,394 24	6,705 76	9,100 00
Totals											2,394 24	6,705 76	9,100 00

DREDGE 'No. 15,' A. F. BOWMAN.

Wages												78 00	78 00
Contingencies												16,005 40	16,005 40
Totals												16,083 40	16,083 40
Working expenses												16,083 40	16,083 40
Totals												16,083 40	16,083 40

DREDGE 'No. 14,' C. S. BOONE.

Wages											78 00	81 91	159 91
Contingencies											19,170 30	22,400 70	41,571 00
Totals											19,248 30	22,482 61	41,730 91
Working expenses											19,248 30	22,482 61	41,730 91
Totals											19,248 30	22,482 61	41,730 91

Classification and Quantities of Material removed by Dredges during the Year ended June 30, 1905.

DREDGE 'CHALLENGE.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Hard-pan	800	635		375	570							2,150	4,530
Boulders	1,800	1,850	3,065	2,685	460							2,400	12,260
Sand—ordinary		850										300	1,150
Totals	2,600	3,335	3,065	3,060	1,030							4,850	17,940

DREDGE 'ONTARIO.'

Clay and stone		1,700											1,700
Sand ordinary	8,940	8,100	10,350	8,640	8,640							4,680	49,350
Totals	8,940	9,800	10,350	8,640	8,640							4,680	51,050

DREDGE 'NIPISSING.'

Hard-pan			2,000										2,000
Boulders			3,575										3,575
Clay	3,600	11,062½		1,200	2,350								18,212½
Clay and stone											3,562½	15,678	19,240½
Sand—ordinary		5,325	5,562½										10,887½
Sand—very fine	7,199½		2,100	15,675	4,475								29,449½
Totals	10,799½	16,387½	13,237½	16,875	6,825						3,562½	15,678	83,365

CLASSIFICATION AND QUANTITIES of Material removed by Dredges during the Year ended June 30, 1905—*Continued.*

DREDGE 'QUEEN.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Stone											75	10	85
Clay	5,425	7,220	3,500	6,265	1,955							7,420	31,785
Sand, ordinary											100	100	200
Totals	5,425	7,220	3,500	6,265	1,955						175	7,530	32,070

DREDGE 'SIR RICHARD.'

Hard-pan			1,300	2,500	8,000								11,800
Clay	10,700	15,500	10,000	8,300	900								45,400
Sand, ordinary											5,650	13,800	19,450
Totals	10,700	15,500	11,300	10,800	8,900						5,650	13,800	76,650

DREDGE 'RICHELIEU.'

Hard-pan			500								950	3,060	4,510
Boulders		1,000	1,750								12	990	3,752
Clay	1,600	1,550	1,750	8,870	650						950		15,370
Sand, ordinary	4,750	4,000	320										9,070
Totals	6,350	6,550	4,320	8,870	650						1,912	4,050	32,702

DREDGE 'ST. LOUIS.'

Clay			517										517
Sand, ordinary	4,980	5,040	4,581	4,425	1,740								20,766
Sand, very fine											4,569	2,918	7,487
Totals	4,980	5,040	5,098	4 425	1,740						2,918	4,569	28,770

DREDGE 'NITHSDALE.'

Clay			600		1,030							2,170	3,800
Clay and stone	2,140	600	660	1,270	210							980	5,860
Sand, ordinary	3,285	1,780	1,925	1,390	1,000								9,380
Mud				1,750									1,750
Totals	5,425	2,380	3,185	4,410	2,240							3,150	20,790

DREDGE 'INTERNATIONAL.'

Hard-pan	8,400	3,250	17,625	3,125								3,750	36,150
Boulders		3,250	17,625	7,000	12,875						8,500	4,100	53,350
Gravel											8,500	1,900	10,400
Sand, ordinary	8,400			3,875	12,875						1,750		26,900
Totals	16,800	6,500	35,250	14,000	25,750						18,750	9,750	126,800

DREDGE No. 6, 'D.P.W.'

Boulders, stone											1,000	2,120	3,120
Sand, ordinary	6,240			4,560	2,240						1,640	3,320	18,000
Totals	6,240			4,560	2,240						2,640	5,440	21,120

CLASSIFICATION AND QUANTITIES of Material removed by Dredges during the Year ended June 30, 1905 — *Continued.*

DREDGE 'PROGRESS.'

Description of material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Hard-pan											3,160	2,200	5,360
Boulders											2,780	4,800	7,580
Clay	240	13,120	2,880	6,380	1,800								24,420
Clay and stone				560									560
Sand - ordinary											1,180	4,600	5,780
Mud - silt				5,320	1,240								6,560
Totals	240	13,120	2,880	12,260	3,040						7,120	11,600	50,260

DREDGE 'T. F. M. No. 1.'

Boulders		1,400			1,150								2,550
Clay	5,000		9,600	7,975									22,575
Sand - ordinary	6,850	10,350	1,550	4,300	4,350							7,100	34,500
Mud - saw dust					1,125								1,125
Totals	11,850	11,750	11,150	12,275	6,625							7,100	60,750

DREDGE 'LITTLE GIANT.'

Hard-pan	6,400	3,980	1,820	1,460	300							6,052	20,012
Boulders	5,285	3,590	980	1,260	670							3,708	15,493
Sand - ordinary					150								150
Totals	11,685	7,570	2,800	2,720	1,120							9,760	35,655

DREDGE 'No. 4 DALY'

Gravel	2,000												2,000
Clay	2,960			5,760	2,900								11,620
Clay and stone	9,120	16,680	14,600	5,760									46,160
Mud					2,900								2,900
Totals	14,080	16,680	14,600	11,520	5,800								62,680

DREDGE 'OTTO.

Hard-pan			3,875	2,100									5,975
Boulders			2,100	1,100	700								3,900
Gravel	3,760	3,600	800										8,160
Clay	3,700	3,655	350		2,800								10,505
Clay and stone		2,625	1,050	7,150									10,825
Totals	7,460	9,880	8,175	10,350	3,500								39,365

DREDGE 'No. 7 COGHILL.'

Casting over ..... 34,857.

DREDGE 'No. 4,' COHEN & SON.

Hard-pan				759$\frac{7}{5}$	689								1,448$\frac{5}{5}$
Boulders	200			502	544$\frac{4}{5}$								1,246$\frac{4}{5}$
Clay	5,445	5,575	5,412$\frac{1}{2}$	2,550									18,982$\frac{1}{2}$
Sand—ordinary	4,885	5,735	4,955	895									16,470
Totals	10,530	11,310	10,367$\frac{1}{2}$	4,706$\frac{7}{5}$	1,233$\frac{4}{5}$								38,148

CLASSIFICATION AND QUANTITIES of Material removed by Dredges during the Year ended June 30, 1905.

DREDGE 'TRENTON.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Hard-pan											1,460	2,390	3,850
Boulders					855						1,200	1,600	3,655
Clay		8,195	16,675	17,000	8,078								49,948
" and stone												9,080	9,080
Sand—ordinary		8,525	17,335	17,295	8,167								51,322
Mud	31,350	5,320										11,155	47,825
Totals	31,350	22,040	34,010	34,295	17,100						2,660	24,225	165,680

DREDGE 'CENTRAL CITY.'

Hard-pan	6,160	4,880	2,560	1,440									15,040
Boulders				1,680									1,680
Clay			2,080	4,880	5,200								12,160
Totals	6,160	4,880	4,640	8,000	5,200								28,880

DREDGE 'GENERAL MEADE.'

Boulders												1,368	1,368
Gravel										4,048	3,536	10,040	17,624
Clay				8,428	11,364					9,800	13,192	13,736	51,624
Sand—ordinary				6,468	10,140					8,800	13,364	10,728	54,396
Mud											864		864
Totals				14,896	21,504					22,648	30,956	35,872	125,876

10—iv—19½

DREDGE 'ST. LAWRENCE'

Clay					4,100	4,320							8,420
Sand—ordinary					5,620	4,320							9,940
" very fine												9,600	9,600
Totals					9,720	8,640						9,600	27,960

DREDGE 'OTTAWA,' MANLEY & CO.

Boulders												700	700
Gravel												700	700
Clay												3,150	3,150
Sand—ordinary												11,433	11,433
Totals												15,983	15,983

DREDGE 'FRANK,' A. F. BOWMAN.

Clay											7,000	12,630	19 630
Sand—ordinary											5,825	10,910	16,735
Totals											12,825	23,540	36,365

DREDGE 'CHATEAUGUAY.'

Boulders and clay												5,250	5,250
Gravel												5,810	5,810
Totals												11,060	11,060

DREDGE 'E. HALL No. 1.'

Clay												9,520	9,520
Sand—ordinary											6,760	17,110	23,870
Totals											6,760	26,630	33,390

CLASSIFICATION AND QUANTITIES of Material removed by Dredges during the Year ended 30th June, 1905 —*Continued.*

DREDGE 'W. J. POUPORE.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Boulders				3,043									3,043
Clay				8,000								4,080	12,080
Sand—ordinary				8,000									8,000
Totals				19,043								4,080	23,123

DREDGE 'No. 6, R. McDONALD.'

Clay											1,300	19,400	20,700
Sand—ordinary											1,300	11,300	12,600
Totals											2,600	30,700	33,300

DREDGE 'No. 5, R. McDONALD.'

Boulders												42½	42½
Clay and stone												19,036	19,036
Sand—ordinary												9,543	9,543
Totals												28,621½	28,621½

DREDGE 'No. 5, A. F. BOWMAN.'

Clay	18,789	37,828	56,617
Sand—ordinary		19,170	19,170
" very fine		6,164	6,164
Mud	15,716	13,000	28,716
Totals	34,505	76,162	110,667

DREDGE 'No. 6, A. F. BOWMAN.'

Clay	9,200	13,422	22,622
Sand—ordinary	4,592		4,592
" very fine		37,092	37,092
Mud	14,865		14,865
Totals	28,657	50,514	79,171

DREDGE 'No. 9.' OWEN SOUND DGE. & CONS. CO.

Hard-pan	800	500	1,300
*Boulders	800	1,400	2,200
Clay		14,900	14,900
Sand—ordinary		1,400	1,400
Totals	1,600	18,200	19,800

Classification and Quantities of Material removed by Dredges during the Year ended 30th June, 1905.

DREDGE 'No. 1, C. S. BOONE.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Boulders—rock												6	6
Clay—slabs												3,156	3,156
Mud—slabs												414	414
Totals												3,576	3,576

DREDGE 'No. 4' OWEN SOUND, DGE. & CONS. CO.

Gravel											* 11,340	12,802	24,142

DREDGE 'DUKE OF YORK'

Clay—blue												12,301	12,301
Clay and Sand												10,084	10,084
Sand—ordinary											17,400	7,861	25,261
Totals											17,400	30,246	47,646

DREDGE 'QUEBEC' GEN'L CONS. CO.

Clay—blue											180	14,530	14,710

DREDGE 'No. 4' GEN'L CONS. CO.

Clay										18,550			18,550

DREDGE 'No. 2' DOM. DGE. & CONS. CO.

Sand—very fine	18,990		18,990

DREDGE 'ARNOLDI' MARLTON DGE. CO.

Sand—ordinary	10,685		10,685

DREDGE 'HYDRAULIC No. 3, A. F. BOWMAN.'

Sand—very fine	8,148		8,148

DREDGE 'KINGSFORD A. F. BOWMAN.'

Clay	4,268	9,683	13,951
Sand—ordinary	869	9,460	10,329
Sand—very fine	4,354		4,354
Mud	1,407		1,407
Totals	10,898	19,143	30,041

DREDGE 'No. 1, A. F. BOWMAN.'

Clay	5,159	20,173	25,332
Sand—ordinary	100	7,190	7,290
Mud	5,133	2,645	7,778
Totals	10,392	30,008	40,400

DREDGE 'No. 15, A. F. BOWMAN.'

Hard-pan		18,999½	18,999½
Boulders—stone		6,000	6,000
Clay		3,508	3,508
Totals		28,507½	28,507½

CLASSIFICATION AND QUANTITIES of Material removed by Dredges during the Year ended 30th June, 1905.—*Continued.*

DREDGE 'No. 14, C. S. BOONE.'

Description of Material dredged.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Grand Totals.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Boulders—rock											8,268	9,642	17,910
Mud											513	747	1,260
Totals											8,781	10,389	19,170

PROVINCE OF MANITOBA.

DREDGING.

Delta Harbour.

The dredge 'Manitoba' started operations dredging a channel at the north side of the Canadian Northern railway siding at Delta. A good deal of difficulty was experienced taking the dredge to the starting point by way of Clandeboye bay and inland creek. It was, however, taken to the inner harbour and work started, a great deal to the satisfaction of the people interested, particularly those at Portage la Prairie.

Fairford River Canal (Lake Manitoba Outlet).

The plant doing the work at the mouth of the Mossy river, and also intended to do the Fairford river work, was, owing to the very low water, engaged dredging a channel at the mouth of the Mossy river, but some repairs and maintenance of the plant was charged to the Fairford river work, as well as fuel ordered and paid, for, expecting that the work should be proceeded with, if not with the dredge 'Priestman' with the dredge 'Manitoba' plant. Owing to the lowness of the water, it would appear as if more plant would be required to do all the necessary work.

Lowering Lake Dauphin.

The clam shell dredge 'Priestman' equipped for the purpose of lowering Lake Dauphin, was, owing to the low stage of the water, kept working at the mouth of the Mossy river, in order to permit steamers to go in and out of the river. It was the intention to have the dredge work her way up the river removing boulders and other obstacles, but for the reason aforesaid, it was thought advisable to keep the plant working at the mouth of the river, that also partly answers the purpose of the work of lowering Lake Dauphin.

Mossy River (mouth).

The barge and clam shell dredge 'Priestman' equipped for the purpose of carrying on the dredging at the mouth of the Mossy river, also the removal of boulders from the bed of the Mossy and Fairford rivers, was completed the first week in August, 1904. An attempt was made to take the plant up to Lake Dauphin by way of the Mossy river, in order to firstly start the work of the regulation of the flow of the said lake, but owing to the very low stage of the water, the plant could only have been taken up with difficulty, and at a greater cost than would be the case at high water. It also happened that the elevation of Lake Winnipegosis at the time, was equally low, and therefore it was found that the channel at the mouth of the Mossy river, Lake Winnipegosis, required deepening and widening in order to permit steamboats to come in and out with safety, so the plant was kept doing the necessary work at the latter point.

The total number of cubic yards excavated was 13,721 at a total cost of $4,514.82. The material was mostly hardpan and boulders, which was cast south of the channel.

The anticipation of the tug led to preparation being made, with a view of taking the plant to Fairford river at the latter end of the season 1904, but since the tug was not available until this season, the plant was kept doing the necessary work at the point indicated above.

Red River.

During the fiscal year 1904-05, the work of the dredge 'Winnipeg' was confined to the old channel, at the mouth of the Red river, excepting that 2,400 cubic yards were dredged at the entrance of the Slough, West Selkirk, and a few days work done opposite the Selkirk wharf extension in the first of the season, before the dredge was towed down to the mouth of the river. The old channel at the mouth of the river, was maintained to such a depth as to permit steamers, drawing 9 feet of water, to come in and out with as much safety as possible. It was found that a great deal of filling in occurred every storm from the northerly directions. The total quantity excavated is 54,820 cubic yards. The total expenditure, that also covers ordinary repairs, was $16,501.64.

Owing to the long tow of material to deep water, consequently the extreme consumption of fuel, the cost of the work is pretty high. It is also thought that the compounding of the tug 'Sir Hector's' engine should be done in the interest of economy. No work was done at the new channel, owing to the fact that no money was authorized to be expended doing the sheet piling or protection work at the lake shore, across the sand bar, in order to prevent the sand that overlays the clay from running back into the excavation during storms. The amount and extent of dredging to be done after the protection work is completed, could also be rapidly done to such a width and depth so as to permit the entrance of vessels within a short time after the work is started.

DREDGE VESSELS REPAIRS.

The work of re-constructing the hull of the tug 'Victoria' was continued during the months of July, August and part of September, 1904, when it was completed. The labour account doing this work, is high, owing to the fact that native oak, which requires a great deal of dressing, was used entirely from the keel up, excepting the decking which was built of British Columbia fir. The work was done throughout in a first-class, good, workmanlike manner, so that the hull is staunch and reliable, and could stand a somewhat heavier and more powerful boiler and engine, that would also produce a more useful and effective vessel than the old one was, in fact, it would seem as if the renewal of both the old boiler and engine has become a matter of necessity, although in a fair state of repairs.

It has been in use for twenty-five years, and therefore out of date, and it follows, not economical in fuel, also none too reliable. A new and very much needed boiler was installed in the tug 'Sir Hector.' The old one was put ashore after twenty-five years use, showing signs of having been repaired and patched up to such an extent, as to justify its replacement by a new one. Pony pumps that had been in use for an equal number of years, and practically worn out and unreliable, were replaced by new ones, so that, generally speaking, with ordinary repairs and maintenance, the machinery might be said to be in fair working condition. The two scows were also hauled up, recaulked and repaired generally, ordinary repairs done to the dredge, tug 'Sir Hector's' hull, &c.

The dredge 'Manitoba' and tug were hauled up and recaulked, anchor slides put in, and therefore stood a regular repairing and general over-hauling after a season's operations.

PROVINCE OF BRITISH COLUMBIA.

DREDGING.

Fraser River.

This service, by reason of its magnitude and varying conditions, is by far the most important in the province. The question of the conservation of the Fraser river has been a burning topic of discussion with the New Westminster Board of Trade and other influential bodies both in this city and at other places along its banks, and has formed the subject of many reports both main and supplementary. Suffice it to say that the system adopted has been approved, and is in accordance with the best methods of modern engineering practice, being by dredging where necessary and protection of the banks from erosion by mattrassing or pile-protection, where the material so washed in is menacing navigation. In conjunction, this system, although not completed has been found to be effective and a uniform depth of 27 feet at ordinary high spring tides exists and is maintained from the sand heads, at the mouth of the river, to above Sapperton, some two miles above the city of New Westminster, a distance of twenty miles. The fluctuation of the tide varies from 10 feet at the mouth of the river to 5 feet opposite New Westminster. With increased appliances in the shape of additional dredges, as has been recommended, it is only a matter of a comparatively short time to insure a ship channel, from the Gulf of Georgia to the city of New Westminster, with a depth of 30 feet at ordinary high tide. The principal obstacle has been Annieville bar, only a short distance below New Westminster, or between Annacis island and the south shore. This bar has been dredged during the past year and a straight channel obtained, 3,000 feet long by 150 feet wide and 25 feet deep at extreme low tide. It is intended to make another cut, widening the channel to 300 feet.

The navigation between New Westminster and Chilliwack, the present head of navigation on the Fraser, some fifty miles above New Westminster, is the ordinary river navigation where 7 to 8 feet at low water is all that is required, and which is obtainable. Two regular steamers run daily the entire year, except when stopped by ice.

In response to the request of the British Columbia Settlers' Association we built two dams across the main Nicomen Slough and another channel, so as to retain the current in main river instead of following Nicomen Slough and flooding valuable land adjoining. Two more, but smaller dams, require to be built to entirely close the channels leading from the river to Nicomen Slough, and will be constructed next year under the appropriation for this service. The dredge 'King Edward' was used to reinforce these dams by depositing a large amount of gravel in front which has made them secure against any pressure of water.

We have also built a new scow 60 x 20 feet with steam hoist and 'A' frame, for handling the many anchors in use by the 'King Edward' in securing pipe line and dredge, and which is also fitted up as a blacksmith and carpenter shop and attached to the dredge 'King Edward.' In the near future much of the outfit of this dredge will need renewal. The large centrifugal pump shell and runner will have to be replaced by an entirely new one. Cutter shaft and head, suction and discharge pipes are all listed for renewal. They have now, with the exception of pump shell, been four years in steady work and at times in trying material. The pump shell was renewed two years ago and now has a bad crack some 5 feet in length, but made secure by a steel plate patch 7 feet long secured by stud bolts.

The expenditure in connection with the above service has been as follows :—

Wages		$ 8,832 22
Provisions		1,952 49
Material		3,193 31
Tug-hire		295 00
Team-hire		722 54
Fuel		121 55
Pile-driver		560 25
Building scow		949 78
Contingencies		39 40
Superintendence		1,545 45
Tide gauges		493 70
		$ 18,705 69
Dredge 'King Edward':—		
Wages		$ 3,396 59
Provisions		790 80
Material		696 30
Fuel		1,136 75
Tug-hire		5 00
Contingencies		29 10
		$ 6,054 54
		24,760 23
Snag boat 'Samson'—		
Provisions		$ 230 19
Total		$ 24,990 42

Nanaimo Harbour.

There has been no expenditure on the above service. The appropriation was placed in the estimates to meet the probable contingency of a further survey of the harbour, or the necessity of clearing up the detritus that collects in front of the wharfs of coaling docks. The work of dredging done in main entrance, or south channel, to the harbour some years ago, when a depth of 30 feet at low tide was obtained, has met all requirements of navigation thus far.

Victoria Harbour.

The expenditure on this service for the past fiscal year is practically the annual cost of maintenance and working expenses of the dredge 'Mud Lark', representing a current monthly expenditure of $1,407.40. This monthly cost for working expenses is gradually increasing owing to the deterioration of the hull and machinery. The work upon which this dredge has been engaged is the deepening of the main entrance channel from the outer wharf to the docks in the middle or inner harbour ; deepening in front of and around the new Canadian Pacific railway docks, in James bay, to a uniform depth of 16 feet at low spring tides; and dredging in front of the marine railway, of the Victoria Machinery Depot Company, in the upper harbour. When the weather would admit, the material dredged was deposited in deep water outside the harbour, at Brotchie ledge, and when stormy, in front of the retaining wall, across James bay,

from whence it is intended, by means of the 'King Edward,' to pump up and deposit it inside the wall and around the foundations in rear of the new Canadian Pacific railway hotel. I estimate there is 50,000 cubic yards of material, to be moved. This will complete the filling in behind the retaining wall commenced two years ago, but suspended at the request of the city authorities until such time as the work on the foundations was sufficiently advanced to admit of our continuing the filling. The most convenient time to resume this work will be during the winter months, when the usual run of ice in the Fraser river makes our work there rather hazardous, as it is impossible to maintain our discharge pipes and pontoons in position.

In deepening the main entrance channel to 16 feet, a larger area of Dredger Rock has been uncovered and will have to be removed, for which an additional sum has been asekd for in 1905-06. We are much hindered in our work by bad weather as it is in a very exposed position and open to southerly, south-easterly, and south-westerly winds which roll in such a swell that it is impossible to work, and we have already broken our spuds in endeavouring to hold the dredge in position. Much valuable time is thus lost.

They are now agitating in Victoria a scheme for deepening and enlarging the entire harbour, to a depth of 25 feet at low tide. It is doubtful if the area can be made sufficiently large to warrant the expense such a depth would entail, as the space is too contracted for the large ocean-going ships engaged in the Australian and China trade. The difficulty could be better met outside of the outer wharf, but, under the most favourable circumstances, will prove a very expensive undertaking.

The expenditure for the past year on this service has been as follows :—

Wages	$ 9,006 53
Provisions	2,224 15
Material	2,530 31
Fuel	2,299 25
Water	55 45
Tug hire	773 00
Total	$ 16,888 69

DREDGING PLANT, BRITISH COLUMBIA.

The work of the hydraulic dredge 'King Edward,' snag boat 'Samson,' and dipper dredge 'Mud Lark,' is chargeable to the above appropriation when these vessels are not engaged on any special service. In the case of the dredge 'Mud Lark,' which has been engaged entirely during the past year on the work of deepening Victoria harbour, her services are charged to that appropriation. The cost of the old snagboat 'Samson' was, with but little variation, $10,000 annually. Our new and larger snag boat, now in use, will possibly slightly exceed this amount. The work of the dredge 'King Edward,' which was confined entirely to dredging, consumed the balance of the appropriation.

The duties of the snag boat consist in keeping the river clear of snags as far as practicable, maintaining and moving buoys into position, surveys and other duties appertaining to the service on the Fraser river, which keep her constantly employed the entire year, with the exception of two or more weeks during the winter months, when the ice is running in the Fraser, not always of annual occurrence.

The dredge 'King Edward,' when not under repairs, is steadily engaged in the work of dredging at various points ; this year exclusively in the Fraser river. During the year she has been engaged in dredging a channel through the Sand Heads, at the entrance to the north arm; deepening in front of the Ross-McLaren and Brunette saw-mills, immediately above New Westminster at the request of the respective owners; clearing out the old channel at Ladner ; cutting a channel through

Annieville bar, 3,000 feet in length, 150 feet wide, and 25 feet deep at low tide ; and in opening the channel at Chilliwack giving better access to the wharf recently built, where she is now engaged and near completion. The intention is to widen the channel through Annieville bar to 300 feet so soon as we have ascertained the action of the freshet on the cutting already made. The formation of this bar is a contradiction to the usually accepted theory as it makes during high water and an extreme velocity of current, and scours with lower water and lessened velocity. The variation of tide at this point which is opposite, or a little below the city of New Westminster, is 5 to 6 feet, giving 30 feet at ordinary high water. With some further work between Steveston and Port Guichon, this depth can be secured between New Westminster and the Gulf of Georgia and should meet all the requirements of this port. As it is they have 27 feet, so that, if considered as a tidal harbour, as many much more important ports are, there is sufficient water for vessels of 3,000 tons and over.

The work of the dredge 'Mud Lark' is described under the head of Victoria Harbour, to which her operations have been exclusively confined.

The expenditure in connection with the service of dredging in British Columbia for the past year has been as follows :—

Dredge 'King Edward.'

Wages	$10,545 93
Provisions	2,777 28
Material	2,476 74
Fuel	6,071 97
Water	39 86
Tug hire	3,325 00
Contingencies	63 95
Paid in Ottawa	50 00
	$25,350 73

Snag Boat 'Samson.'

Wages	$ 7,005 58
Provisions	1,793 09
Material	599 44
Fuel	1,525 87
Water	66 74
Contingencies	69 10
	$11,059 82

NEW DREDGING PLANT.

Victoria Harbour.

This appropriation is designed to cover the cost of the construction and equipment of a new snag boat for the Fraser river to replace the old one, now twenty years in use and condemned as unsafe by both the boiler inspector and the inspector of hulls, and a new steel tug and tender to take the place of the present small tug 'Princess,' some sixteen years in use, which is not of sufficient size or power to move the heavy dredge 'Mud Lark,' to which she is attached, in other than harbour waters.

The contract for the snag boat was awarded to Mr. Wm. Turpel, proprietor of Turpel's Ways, Victoria, for the sum of $22,500. The contract was signed on August 15, 1904, and the boat completed on May 30 last, at a cost of $25,179.38. The contract for the steel tug was awarded to the Victoria Machinery Depot Company, of Victoria, for the sum of $24,750, and was signed on August 8, 1904, but the work will not be

completed before the end of December next, at a cost of probably $30,000. Both these boats according to the terms of contract were to be completed six months after the date of signing the contract, or on February 15 and February 8, respectively. The cause of the delay and increase in cost was the contention on the part of the builders of the machinery, in both cases the Victoria Machinery Depot, that the boilers specified for both boats were too small to give the results in power and speed called for in the specification, and other alterations to the machinery, &c., found necessary during construction. The matter was referred to Ottawa to adjust and was finally allowed.

The new snag boat was delivered at the port of New Westminster on May 29, 1905, where, after the six days official test, it was accepted subject to ordinary conditions. She has now been in commission since June 1, and has been found very satisfactory and admirably adapted for the purpose for which she was built, which calls for an exceptionally stiff hull to withstand the very severe strain to which, at times, it is subjected.

The steel tug promises to be equally satisfactory and is an excellent piece of work. Both hull and machinery have been built under the strict supervision of the respective inspectors, and she promises to be the best boat of her class on the coast.

New Snag Boat 'Samson.'

Length—115 feet.
Breadth—30 feet.
Depth—6 feet.
Draught—3 feet.

Steel Tug and Tender.

Length between perpendiculars—85 feet.
Breadth of beam, moulded—17 feet.
Depth, moulded—12 feet 4½ inches.
Maximum depth to bottom of 6-inch keel—10 feet 6 inches.
Maximum approximate displacement—180 tons.
Indicated horse power—280.
Speed—10 to 11 knots.
Coal capacity—50 to 60 tons.

DREDGE REPAIRS, BRITISH COLUMBIA.

The bulk of this appropriation was expended in repairs to the dredge 'King Edward'. The clean sharp sand met with at the mouth of the north arm of the Fraser told very severely on her large centrifugal pump, necessitating heavy new castings on front and rear faces, and on the suction and discharge pipes. An entirely new pump will be necessary next year. A renewal of the suction and discharge pipes, which are worn to the thinness of paper in a great many places and the rivetting cut almost entirely away, is also necessary. We have prolonged the life of the discharge pipes by turning them over from time to time but they will not last much longer.

The expenditure under this appropriation has been as follows—ordinary repairs representing those we are able to do ourselves, and extraordinary those where we have been obliged to have the work done by the machine shops :—

Dredge 'King Edward.'

Repairs, ordinary	$ 1,088 46	
" extraordinary	2,167 97	
		$ 3,256 43

Snag Boat 'Samson.'

Repairs, extraordinary	$ 900 53	
		900 53

Dredge 'Mud Lark.'

Repairs, ordinary	$ 232 20	
" extraordinary	410 03	
		642 23
Total		$ 4,799 19

DRY DOCKS.

The Dominion government owns and operates three dry docks, viz.: the Lorne dry dock at Lévis, in the province of Quebec; the Kingston dry dock, at Kingston, in the province of Ontario; and the Esquimalt dry dock, at Esquimalt, near the city of Victoria, in British Columbia.

LÉVIS DRY DOCK.

This dock was kept in an efficient manner during the fiscal year 1904-05. Only the usual repairs, required for the proper maintenance of this property, were carried on during the year.

The total expenditure incurred during the year is $13,143.49.

Total amount of revenue, $16,454.38.

ESQUIMALT GRAVING DOCK.

The action of the naval authorities in dismantling and abandoning Esquimalt as a naval station, or as the rendezvous and headquarters of the North Pacific Squadron has made a radical change in the status of this station. With the naval custom withdrawn and the competition of the Esquimalt Marine railway, our occupation is practically gone and we are maintaining the dock at a heavy annual expense with only a nominal return from the dockage of an occasional ship too large to be accommodated or berthed on the Marine railway, the capacity of which is limited to 2,000 tons the same time, to be of use, the dock has to be, and is, kept up to the same standard as before the withdrawal of the navy.

As will be seen from the list attached to this report, receipts from the vessels docked and dues collected during the past year only aggregated $4,626.54, as against from $14,000 to $15,000 in former years.

The annual appropriation for this service has remained a constant quantity of $13,300 of which the wages of dockmaster and staff take $10,000, and the balance goes in the upkeep of the dock generally.

There have been no extraordinary repairs in connection with the dock during the past year, and the expenditure has been in detail as follows :—

Wages	$ 9,700 79
Material	1,524 71
Telephone	84 00
Water	505 50
Fuel	1,105 50
Contingencies	16 00
Total	$12,936 50

KINGSTON DRY DOCK.

During the fiscal year 1904-05, the dock was occupied thirty-eight days in summer, and one hundred and fifteen days in winter. The number of vessels docked was twenty-eight, with aggregate tonnage of 11,945 tons.

The dock was kept in good working order and only the usual repairs, necessary for the proper maintenance, were carried on.

The total expenditure during 1904-05, was $5,521.87.

RIVIÈRE DU LIÈVRE LOCK.

This lock is situated at Poupore on the Rivière du Lièvre, twelve miles above Buckingham, in the County of Labelle. It was built to overcome the difficulties of navigating the Little rapid, the dam in connection with it also flooded the Long rapid, six miles above and rendered the river navigable up to the foot of High Falls, a total distance of nineteen and a half miles above Buckingham.

Below the last named place, the Lièvre river forms a succession of rapids and falls, which give extensive water power to a number of saw and pulp mills, over a distdistance of three miles, and the river empties into the Ottawa river twenty-one miles below the city of Ottawa. This stretch of navigable water above Buckingham, is an important accommodation to the settlers of the upper part of the Rivière du Lièvre, who have no railway accommodation and it is only of late years that a highway has been built on one side of the river.

The lock and dam were completed in 1892, at a total cost of $233,658.65, they have been kept in good working condition until October 11, 1903, when an extensive landslide occurred on the west side of the river just below the dam. The landslide covered a distance of about one and a half miles below the dam and a width of about one-quarter of a mile from the river bank; some 200 acres of land under culture were destroyed together with farm houses and outbuildings, the farmers and their families barely escaping with their lives, the accident occurred at five o'clock in the morning. The river was completely choked for six hours, the water above rose to a height of 15 feet above its original level and then scoured out numerous small channels through the earth filling formed by the landslide. The upper part of the dam was shoved against the head of water above and 7 feet in height of its top was carried away on a length of 200 feet, the dam is 250 feet long between abutments. Two days after the accident an officer of the department was ordered to the place with instructions to help as much as possible the carrying on of the traffic.

In a few days one of the channels through the earth embankment, had been scoured out to a sufficient depth to permit one of the small steamers doing the service on the river to be pulled through it by means of winches and intended to make the run above the dam, the other steamer remained below. A portage road one and a half miles long was built on the east side of the river to connect its two navigable parts, two freight sheds, 20 x 12 feet, one at each end of the road, were constructed and a contract was awarded to carry the freight and passengers by teams over the portage road.

At its session of 1904, parliament voted an appropriation of $20,000 to be applied towards the reconstruction of the dam.

The amount expended during the fiscal year 1903-04, was $5,517.15.

During the fiscal year 1904-05, the work of reconstructing the dam was carried on and completed. The top of the dam was covered with steel sheets ½-inch thick. The slide in the centre of the dam, was made 12 feet longer than the previous one.

Some 3,000 feet of three-ply booms were constructed and put in position, above the dam. A ledge of rock, 25 feet by 30 feet, was blasted 10 feet deep, so as to prevent logs from jamming at low water.

The expenditure during 1904-5, amounted to $29,234.92.

YAMASKA LOCK.

In 1886, this department constructed a lock and dam, at Ile à Cardin, on the Yamaska river, one and three fourth miles below the village of St. Michel de Yamaska, and about four and a half miles from the mouth of the river; the lock gives a lift of 5¾ feet.

During the last fiscal year, the sum of $2,680.30 was expended to maintain and operate the lock.

SLIDES AND BOOMS.

The Dominion government owns and operates slide and boom works, built to facilitate the passage of square timber, round logs, flatted and dimension timber &c., on the River Ottawa and tributaries, on the lower forty miles or so of the St. Maurice, and in the Trent and Newcastle district, between Fenelon Falls and Heeley's Falls.

In the subjoined reports, the superintending engineers of the river works, Messrs. G. P. Brophy, F. X. Thos. Berlinguet and S. Clegg, give particulars relative to the construction, improvements and repairs carried out under their supervision on government slides, booms, piers, dams, streams, buildings, &c., during the fiscal year, the expenditure incurred for staff, maintenance, improvements, &c., the quantities of the various descriptions of timber that pass through their works, and other information of general interest and utility to lumbermen and the public at large.

REPORT ON THE OTTAWA RIVER WORKS.

(By G. P. Brophy, Superintending Engineer.)

SIR,—As requested by you, in your communication No. 3,213, of July 14 last, I have the honour to submit the following report relating to the works under my charge, for the fiscal year ended June 30, 1905.

The foundations of the different river works were examined at low water season and the necessary repairs were commenced in the autumn and continued during the winter months.

The following is a description of the repairs executed.

STATIONS ON THE OTTAWA RIVER (MAIN STREAM).

Carillon Station.

The repairs at this place were only of a trivial nature and consisted in painting the boats and scows, and patching and reshingling roof of storehouse.

North Chaudiere Station.

In the latter part of September, 1904, a portion of the upper slide, at its outlet, was torn away. The break was temporarily repaired without delay, and last spring the slide was thoroughly overhauled. A pier was built at the outlet to replace that carried away, and the bottom was formed with solid timbers. The floor of the slide throughout, was covered with iron bars, held in place by countersunk headed spikes. Two new glances were built, on either side, at foot, to protect the side piers. The sides were patched in many places, and the stop-log posts, where worn, were filled in with new material. The guide booms at entrance to slide, were straightened and properly secured; new planking and cross-fenders being provided to stiffen them.

At the lower basin, a new slide for use in seasons of low water was constructed, and the top portions of the old one were renewed. The low water slide is 90 feet long, 12 feet wide at mouth and 7 feet at outlet. It rests on solid rock, the sills being set

3½ feet centres and well rock-bolted. The sides are formed of crib-work, filled with stone, while the bottom is of hemlock, 3 inches thick, covered with flat iron bars.

The high water slide is 60 feet long, 10 feet at intake, and 7 feet wide at outlet. It is composed of solid timber, in bottom and sides, and is sheated with iron, to prevent wear, as much as possible.

The west gate, used to regulate the pitch of water in the lower basin, having become somewhat unsafe, was made more secure. In order to resist the pressure against the bulkhead and thus strengthen the foundations, a pier was built in the rear, and this carried braces supporting the bents of the bulk-head.

The guide booms were replanked, and additional stone was placed in the retaining dam.

South Chaudiere Station.

The ordinary repairs were made to the numerous buildings, at this station. The main storehouse was sheeted with brick siding. During the winter months, snow was frequently removed from roofs of the buildings and from the general yard. A close watch was kept on the booms and aprons; ice was cut from around these stringers and the chains were adjusted many times, so that no damage might result to these works.

Cheneaux Station.

Two anchor piers, each 16 feet by 18 feet and 8¾ feet high, were built and sunk in place, with the usual floating buoys, to which the booms are attached. The floating platforms at gaps were removed, and an iron spindle was provided to operate the gap timbers.

TRIBUTARIES OF OTTAWA.

Gatineau River.

The top covering, cap-pieces and pickets of the main boom were patched and renewed; the connecting links and screw-bolts were straightened and properly adjusted. The tops of four of the piers which support the main boom, having become very much dilapidated, had to be rebuilt, from low water mark. These are piers Nos. 2, 5, 7 and 8. Pier No. 2 is 27½ feet by 29½ feet at base, 16 feet by 18½ feet at top and 14½ feet high ; No. 5 is 35 feet square at bottom, 15 feet by 16 feet at top and 14½ feet high ; No. 7 is 27 feet by 32½ feet at base, 17 feet by 23 feet at top and 15 feet high; and No. 8 is 18 feet by 25 feet and 15 feet high. These piers are supplied with timber fenders at their corners and are covered in front with 3-inch plank. A quantity of stone was placed around foundation of pier No. 8 to prevent the base being scoured out.

About midway between the Canadian Pacific bridge and the mouth of the new canal, on west side of river, two sections of cribwork were built, to prevent the bank from being washed out at this particular place. Both sections are 9 feet wide, and 8 feet high, filled with stone, the length of one being 70 feet and that of the other 50 feet.

On the reserve, in close proximity to the station house, a new storehouse was built. This is a frame building 20 feet by 30 feet and 1½ stories high, suitable to store chains, ropes, tools, crabs, windlasses, boats, &c. Repairs were also made to the remaining old piers, plank and timber fenders being used to reinforce the corners.

Madawaska River.

Arnprior Station. At the foot of the Arnprior slide, the upper part of the protection pier on the west side, was rebuilt. The portion replaced was about 3 feet high,

90 feet long and 10 feet wide. The crib is filled with stone and planked on top with 3-inch material, forming an apron. Above the entrance to slide, the top of a pier, 18 feet by 26 feet, supporting the main guide boom, had to be renewed, as the upper timbers were carried away.

At High Falls Station.—The pier on the south side, at head of slide, was rebuilt with new timber. This is 53 feet long, 10 feet wide and 9 feet high. The platforms of bulk-heads were renewed and ten new stop-logs were provided for slides, four being for upper bulk-head and six for the lower one. The guide boom between the two bulk-heads was reconstructed. It is composed of four piles of timber 14 x 14 inches, 123 feet in length, bolted together by screw-bolts of 1-inch diameter, and is sheeted on face with maple plank, 4 inches thick. The crab frames on bulk-heads and the sheeting on booms and flat dams were also patched where defects were found.

At Ragged Chute.—Some lengths of the main boom, which had become very much water logged, were hauled out to dry, and placed in position again when the ice left the river in the spring.

At Chain Rapids.—The planking on the different booms and dams was patched where found necessary.

Coulonge River.

At the retaining boom, about four and a half miles below the High Falls slide, the upper portions of two of the piers supporting the boom, were torn away, and consequently these had to be replaced. One of these is 18 feet by 22½ feet at water line, and 15½ feet by 18½ feet at top, while the other is 19 feet by 23½ feet at water line and 15 feet by 19 feet at top; both being 11 feet high above water mark. New stone filling, to the extent of 117 cubic yards, had to be provided for these piers, to replace that swept away.

At High Falls station, the posts of the bulk-heads having been sprung out of position, new uprights had to be placed in the rear of the posts, to prevent further movement and also to provide a proper bearing for the stop-logs. At two different places, the slide structure was repaired, one section being 74 feet in length, and the other 90 feet. At the former place the three bents, 15 feet high and four stringers were set to carry the superstructure ; and eighteen posts, seven cross sills and sheeting in sides and bottom were also laid in the slide proper. In the other section, four bents 16 feet high were set, and the adjacent ones were stiffened by extra braces of 3-inch plank. At different places the sheeting in sides and bottom in slide were patched where worn thin, and altogether sixty-six new posts and thirty-three cross sills were renewed. The foot boards and braces were patched, and at places where the slide is of a great height, chains and rods were set, attached to bolts placed in the solid rock to steady the structure as much as possible. A breach, 33 feet in width, in the main governing dam was covered with 3-inch plank. Two snubbing posts were placed in two boom piers above the slide entrance, and new chains were set in the guide boom leading to the slide.

Black River.

At High Falls station, the slide was repaired throughout its whole length. Decayed and worn planks were renewed and replaced by new ones. A portion of the timber slide, near the foot, which had become sprung out of place, was taken down and rebuilt. A large quantity of iron bars was laid in the sides and bottom of slide to protect the planking as much as possible. Two eye-bolts with chains attached to rock bolts were placed a short distance from entrance to slide, to stiffen the structure, where it passes over a deep gulch. A supply of pine timber and maple, birch and pine plank was purchased for future repairs at this station.

Considerable difficulty is experienced in keeping the slide works at High Falls, in a proper state of repair, as it is now many years since they were thoroughly overhauled, so that repairs of a more heavy character will shortly have to be undertaken, in order that these works may be placd in a serviceable condition.

Petewawa River.

At the mouth of the Petewawa river, the top timbers of a pier supporting the retaining boom were removed and replaced by new ones. A new snubbing post was placed in this pier, and additional mooring and skein chains were provided for booms.

At First Chute station, the upper portion of the pier dam on south side of river, near waste gate, was renewed and 51 cubic yards of stone ballast were placed in the crib.

In the spring of 1894, two glance piers at the Third Chute suffered damage and, for the most part, had to be rebuilt. The lower one, on north side, is 133 feet long, 16 feet wide and 9 feet high; sheeted in front with 4-inch plank and protected by ¼-inch iron bars, where the wear is greatest. The upper pier, immediately above the C.P.R. bridge, on north side, is 138 feet long, 12 feet wide, and of an average height of 7 feet, and is also sheeted in front with 4-inch plank. A new pier dam was also built, on south side, a short distance below C.P.R. bridge. This forms a glance and is 90 feet long, 9 feet wide and 6 feet high, and sheeted with 4-inch plank on face. Two piers, at the feeding gap, were raised two courses, in order that they might be the better adapted for the work they have to perform.

At Half Mile station, some of the stringers and ties of the flat dam were replaced, and the front of the dam was patched with 4-inch plank, 16 feet long, where the old material had been torn off.

At Crooked Chute station, the sills, stringers, posts and sheeting of the slide were overhauled and patched, in many places, where defects were found. At the upper end of the retaining boom about 1½ miles above the slide, a snubbing pier was rebuilt. This is 12 feet by 16 feet and 7½ feet high, and is filled with stone. The retaining boom was strengthened by placing splice pieces at the joints, secured by chains.

At Lake Traverse station, two side dams were repaired and some rock obstructions were blasted, to improve the running in the timber channel.

At McDonald's station, the floor of the slide at outlet was laid with hardwood plank ; the foundation timbers of the piers at foot were repaired, and stone-filling which had been carried away, was replaced. The sides of the slide at entrance, and also at curve on north side, near outlet, were replaced with new material. The planking on the main governing dam was patched where defective; and a quantity of brush and gravel was placed in front of dam, at its foundation, to reduce the leakage as far as possible.

Dumoine River.

High Falls station.—As the cost of keeping the slide at this station in proper repair (the structure being over 3,000 feet in length), was necessarily very great, and as the cost in these repairs increases from year to year, as the works become older; it was decided to abandon the old slide, as a means of passing timber and logs at this particular place, build a short slide at head of the rapids and improve the lower sections of the chutes by building the usual side dams and blasting rock obstructions, thus making the improvements of a more permanent nature. These works were undertaken last winter and finished in due time for driving operations the following spring.

A short distance above the foot of the rapids, two glance piers were constructed. The one on east side is 240 feet long, 10 feet wide and 8 feet high; while the other on opposite side of river is 60 feet long, 10 feet wide and 7 feet high. At a point

about 1,400 feet above old slide outlet, a pier was built between an island and the main shore, to block a shallow and rocky channel. This dam is 50 feet long, 11½ feet high and 14 feet wide at base, drawn in to 7 feet at top, the front being sheeted with plank 4-inch thick.

The new slide is 85 feet in length, 16 feet wide at intake and 12 feet at outlet. The sides are formed of cribwork and the floor is of timber laid on cross sills bolted to solid rock.

The waste gate piers are 14 feet long, 10 feet wide and 13½ feet high. A large quantity of rock was blasted in the bed of the river, over the whole extent of the rapids. At many places, coffer-dams and tramways had to be built to divert the water and give access to the works, so that the improvements could be proceeded with.

Last spring the water in the Ottawa river and its tributaries was not as high as is usually the case, but nevertheless it kept at a very favourable pitch, for driving purposes, during the summer months which followed, and the drives, for the most part, were taken out without difficulty, the only exceptions being those from the remotest sections of the districts.

The following statement prepared from information furnished by the Collector of Revenue of the department, shows the number of pieces of the various descriptions of timber that passed these works and the revenue accrued thereon, during the fiscal year ended June 30, 1905.

Square timber	3,372	pieces.
Saw logs	4,404,675	"
Boom and dimension timber	137,780	"
Cedars	85,369	"
Railroad ties	636,120	"
Fence posts	251,018	"
Total	5,518,334	pieces.

Also 16,040·86 cords of pulp wood. The revenue accrued on the above was $44,652.03.

STATEMENT showing Expenditure for Repairs, &c., to Works on the Ottawa River and its Tributaries, and to Bridges at Ottawa, and Roadway and Bridge Approaches between Ottawa and Hull, for Fiscal Year ended June 30, 1905.

NAMES OF STATIONS.	Province.	Electoral District.	Expenditure July 1, to Dec. 31, 1904.		Expenditure Jan. 1, to June 30, 1905.		Expenditure July 1, 1904, to June 30, 1905.	
			$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ordinary Repairs: Ottawa River Works								
Carillon Station, North Chaudière Station, South " " , Cheneaux Station — Ottawa River: Main Stream.	Ont.	County of Prescott			28 99		28 99	
	Que.	District of Wright	1,411 58		1,960 44		3,372 02	
	Ont.	City of Ottawa	459 28		1,533 86		1,993 14	
	Ont.	South Riding of County of Renfrew	105 00		482 18		587 18	
				1,975 86		4,005 47		5,981 33
Gatineau River	Que.	District of Wright	3,376 18		4,902 03		8,278 21	
Madawaska "	Ont.	South Riding of County of Renfrew	455 29		945 46		1,400 75	
Coulonge "	Que.	County of Pontiac	1,151 15		1,863 05		3,014 20	
Black "	Que.	" "	148 12		1,809 77		1,957 89	
Petewawa "	Ont.	North Riding of County of Renfrew and Nipissing	1,200 01		1,906 90		3,106 91	
Dumoine " — Tributaries of the Ottawa.	Que.	County of Pontiac	1,814 53		4,735 45		6,549 98	
				8,143 28		16,162 66		24,307 94
Total for Ottawa River Works								30,289 27
Ordinary Repairs: Bridges at Ottawa and Roadway and Bridge Approaches between Ottawa and Hull								
Dufferin Bridge	Ont.	City of Ottawa	125 50		154 01		279 51	
Sappers' "	Ont.	" "	208 00		180 01		338 89	
Chaudière Slide Bridge	Ont.	" "	116 00		244 25		360 25	
Union Bridge	Ont. & Que.	City of Ottawa and District of Wright	464 00		242 17		706 17	
Hull Slide Bridge	Que.	District of Wright	4 50		44 25		48 75	
Roadway and Bridge Approaches between Ottawa and Hull	Ont. & Que.	City of Ottawa and District of Wright	746 75		878 38		1,625 14	
				1,665 64		1,743 07		
Total for Bridges								3,408 71
Extraordinary Repairs—								
Union Bridge and approaches thereto	Ont. & Que.	City of Ottawa and District of Wright				3,637 09		3,637 09
Approaches to Dufferin and Sappers' Bridges	Ont.	City of Ottawa				1,809 00		1,809 00

REPORT ON THE ST. MAURICE RIVER WORKS.

(By F. X. Thos. Berlinguet, Superintending Engineer.)

THREE RIVERS, October 14, 1905.

EUGÈNE D. LAFLEUR, Esq.,
Chief Engineer,
Department of Public Works of Canada,
Ottawa.

Sir,—As requested in your letter No. 3188, I have the honour to submit the following report on the St. Maurice river works for the fiscal year ended June 30, 1905.

The fluctuation of the water level on the St. Maurice river, during the time of the floating of the logs during the commercial season of 1904, has been the highest since 1873, but, on many of the tributaries, the duration of the freshets has been too short for the number of logs to be floated, consequently many of the logs were left for the following season.

The handling of the booms was entirely done with the steam warping tugs. These tugs have not only done the work expected of them, but far exceeded the expectation, especially the one with twin screws.

The purchase of these tugs has proved a great success. The full price of the three tugs now in use on the St. Maurice river works, was saved in the first season of operation.

The twin screw tug is considered a great improvement to the side wheels tugs, especially for the handling of booms, &c.

When the water was at its lowest pitch, the foundations of 138 piers were examined, also 64,385 lineal feet of booms, and put in good condition for the next season. The work was continued during the early spring months, in order that everything would be in readiness for the opening of commercial season of 1905.

These works may be described as follows :—

Pointe à Trudel booms.—On the 40th mile of the St. Maurice river, 1,412 lineal feet of booms, also three mooring piers were put in good condition for the commercial season.

Pointe Madeleine booms.—On the 39th mile, 2,588 lineal feet of booms, also ten piers were examined. Stone ballast was put in the piers where necessary. A number of boom chains were supplied.

St. Jacques des Piles booms.—On the 38th mile from the outlet, 2,176 lineal feet of five to six ply booms, also seven mooring piers were put in good condition. A number of boom chains were supplied. Stone ballast was put in the piers where necessary, and ordinary repairs were made to boats, scows, station house and fences.

Ste. Flore booms.—On the 34th mile, 1,311 lineal feet of three and four ply booms were put in good condition. A number of boom chains were supplied.

Petites Piles booms.—On the 33rd mile, piers Nos. 9, 10, 11 and 12 were raised to strengthen the mooring of 4,238 lineal feet of five and eight ply booms.

Pointe à Walsh booms.—On the eastern side of the river, on the 33rd mile, 2,400 lineal feet of booms were stretched from the said point up. A number of boom chains were supplied.

Rapide des Hêtres booms.—On the 26th mile, 2,600 lineal feet of three and two ply booms were put in good condition, and the dam closing the eastern channel was raised a few feet and stone-filled. A number of guy chains were supplied. Piers Nos. 1, 2 and 3 were raised and strengthened.

Point à Bernard booms.—On the 23rd and 24th mile, repairs were done to piers Nos. 1, 2, 3, 4 and 6. A number of boom chains were supplied.

Shawinigan slide.—On the 22nd mile. A section of the bottom and sides of the slide were repaired by replacing the wornout timber and planking with new material, the apron faced with hardwood, and the projecting spikes in the bottom and sides of the slide were countersunk.

Ile aux Tourtes booms.—On the 18th mile, 11,805 lineal feet of one to seven-ply booms were put in good condition and were left stretched for the winter to close the eastern channel above the island and the western channel below the said island. A number of boom chains were supplied.

Three Rivers booms.—Pier No. 3 was built in the eastern channel, and piers Nos. 5, 11, 13, 15, 25 and 27 were repaired by replacing the worn-out timber and planking with new material.

The statement furnished by the Collector of slide and boom dues shows that 3,540,383 logs have passed the government works during the season 1904.

REPORT ON THE TRENT AND NEWCASTLE DISTRICT WORKS,

(S. Clegg, Superintending Engineer.)

PETERBOROUGH, September 29, 1905.

EUGÈNE D. LAFLEUR, Esq.,
Chief Engineer,
Department of Public Works.

SIR,—In accordance with your circular, No. 3210, dated Ottawa, July 14, 1904, I beg to submit the following report on the Trent and Newcastle district for the fiscal year ending June 30, 1905. These works extend from Chisholm's rapids, on the Trent river, to Fenelon Falls, at Cameron lake. A distance of about 150 miles.

HEALEYS FALLS.

The works here are in a fair state of repair, the department has not spent any money on the upkeep of the works here this year. The Rathbun Company put three new stop-logs in the timber slide.

HASTINGS.

This slide is in good repair, the boom at the entrance to the slide, on the south side, was broken and carried away by the ice. This boom was repaired, new timber put in and some minor repairs done to the glance piers.

LITTLE LAKE PETERBOROUGH.

There is about one-half mile of double boom and four glance piers. The boom was taken off in the fall and replaced in the spring and some minor repairs done.

KETCHEWANNŒ LAKE.

The boom here extends from Young's point to Lakefield, a distance of about four miles. This boom was damaged considerably by the ice and wind in the spring, and lost quite a number of the anchors; it was repaired and new anchors and chains

put on where necessary and the boom overhauled and put in first-class shape. One of the piers, in Ketchewannoe lake, was rebuilt from the water line, and some minor repairs were made to the other piers.

BURLEIGH FALLS.

Put in a new stiff boom 150 feet long; rebuilt the old boom; put in one new glance pier and raised the old pier two courses of timber, put new sheeting on the side dam.

DEER BAY.

The boom here was repaired and put in position for the season.

BUCKHORN.

All the double booms were hauled out of the water in the fall and skidded up. It was overhauled and put in good repair, replaced in the water in spring, and put in position for the season's work.

The side pier at the foot of the slide had some stone filling put in.

FENELON FALLS.

The boom here was overhauled in the spring and put in good working order for the season's operations. Some minor repairs were made to the slide.

BRIDGES AND ROADS.

It may be stated that, in the older provinces of the Dominion, the federal government has confined itself as a rule to take under its exclusive control and make provisions towards the construction and maintenance of important interprovincial road bridges and bridges required across waterways.

In the sparsely settled districts of the North-west Territories, the government of Canada has undertaken to provide for the erection and maintenance of ordinary road bridges over large streams; bridges that are urgently needed to afford uninterrupted communication through trails and highways of national importance, which neither the municipalities to be more immediately benefited by the structures, nor the territorial authorities most directly concerned, could be expected to erect and maintain at their sole expense.

During the last fiscal year works have been executed on the following bridges:—

BRIDGES AT OTTAWA, AND ROADWAY AND BRIDGE APPROACHES BETWEEN OTTAWA AND HULL—ORDINARY REPAIRS.

Sappers' bridge.—A top covering of 1½-inch hemlock plank was laid on the sidewalk, on the south side of this bridge.

The exposed portions or ironwork of both the Sappers' and Dufferin bridges, received two coats of special bridge paint, after the surface had been thoroughly scraped and cleaned of rust, dirt and old paint.

The roadway of the Chaudière bridge, which spans the south Chaudière timber slide and hydraulic channels, was cleaned at different times.

The Hull slide bridge was cleaned often and the rubbish carted off.

The roadway and bridge approaches between Ottawa and Hull, were cleaned at regular intervals; the sidewalks, guard and hand rails were repaired, the grating and water pipes were cleaned at several places where the pavement had sunk from grade, the blocks were taken up and relaid properly.

During the winter months, surplus ice and snow were removed from the sidewalks and roadways of the different bridges and approaches leading to Hull, as has been the usual practice in the past.

APPROACHES TO DUFFERIN AND SAPPERS' BRIDGES.

A supply of Nepean sandstone paving blocks was purchased for the easterly approaches to these bridges, the intention being to take up the scoria blocks now in place and relay the area with sandstone, as the latter is much better adapted to roadways where there is any considerable grade.

UNION BRIDGE AND APPROACHES THERETO—EXTRAORDINARY REPAIRS.

In order to widen the roadway and thus provide better accommodation for the heavy vehicular traffic on the Union bridge and both its approaches, the sidewalk on this bridge and at either end, on the west side, was removed and the space occupied by it was appropriated for roadbed purposes.

The additional width of roadway is of much more value for use of vehicles than for a sidewalk, especially as pedestrians had little occasion to go to and fro on that side of the thoroughfare.

The changes were started in the month of June last, so that only a comparative amount of work was accomplished at the end of the period covered by this report. (June 30, 1905.)

At the southerly approach to Union bridge, the sidewalk was 6 feet wide and 130 feet in length, carried on a rough cribwork. These timbers were removed and a retaining wall of masonry was built, surmounted by a concrete curb, 8 inches thick, and 12½ inches high above the pavement. A close board fence was erected along this portion of the road. It is 6 feet high at southerly end and increases in height to 9 feet at the bridge.

The work has been carried on during the present fiscal year, and at this date is almost completed.

ONTARIO AND QUEBEC.

BRYSON BRIDGE.

Bryson, in the County of Pontiac, is situated on the north shore of the Ottawa river, fifty miles west of Ottawa. The nearest railway station is Campbell's Bay, on a branch line of the Canadian Pacific railway. At Bryson, the Ottawa river is divided into two channels by Calumet island, which is twelve miles long and four miles wide, the population of the island is about 1,400.

In 1886, a bridge was built across the northern channel of the Ottawa river, to connect Calumet island with the mainland. It consists of two mid-stream steel spans, respectively 209 feet and 169 feet long, a wooden bent approach 47 feet long and riprap abutment on the island side; on the Bryson side the approach consists of a wooden Howe truss span 68 feet long and timber bents for a length of 71 feet, the spans are supported by wooden piers partly filled with stone.

The amount required for the construction of the bridge was obtained from four different sources; the municipality of Calumet island contributed $5,000, the municipality of Bryson, $2,500; the Quebec government, $8,000, and the federal government, $6,000.

During the last session of parliament the sum of $15,000 was voted, to renew the wooden approaches with steel girders, and rebuild the shore piers ad abutments with concrete.

In the fall of 1904, the planking and stringers of the two existing steel spans, were renewed.

The amount expended during the fiscal year 1904-05, was $2,233.39.

PORTAGE DU FORT BRIDGE.

Portage du Fort is on the north shore of the Ottawa river, in the County of Pontiac, Quebec, sixty miles above the city of Ottawa.

At this place an island divides the Ottawa river into two channels, called the north and south channels, the village of Portage du Fort is on the north shore of the north channel.

In the fall of 1901, with contributions from the local governments of Quebec and Ontario, this department completed a steel bridge across the south channel. The wooden bridge over the north channel was then unsafe for traffic, and it being considered as forming part of the interprovincial bridge uniting the two provinces, the department decided also to renew this bridge with a steel structure of one span, 200 feet in length.

In June, 1903, a contract was entered into with Mr. Thos. Moran, of Arnprior, for the construction of the two abutments and the approaches on both sides. The con-

tract for the steel work was awarded on August 25, 1903, to the Locomotive and Machine Company, of Montreal.

The work on the masonry abutments and approaches was started in July, 1903, and at the end of November of that year, the abutments were nearly completed and ready to receive the superstructure. The abutments are built U-shape, on a rock foundation, of first-class rock faced ashlar masonry, laid in Portland cement mortar. The approaches consist of riprap walls, sloping one in one on their outer faces, filled between with earth, 24 feet wide at top and provided with gas pipe railing.

The steel superstructure was completed in December, 1904, it consists of a rivetted through span, 200 feet in length, strongly built and of fine appearance.

The amount expended on this work during the fiscal year 1904-05, was $8,694.07.

GRAND RIVER BRIDGE.

Grand River Bridge, over the Grand river, in the village of York, in the County of Haldimand, is a highway bridge, maintained by the government.

At the last session of parliament, the sum of $1,000 was appropriated for repairs to the bridge, and on May 23, 1904, orders were issued to proceed with the work, by day labour.

The work was completed by September 10, 1904, and consisted in the renewing of the flooring of the whole length of the bridge, and the placing of temporary bents alongside the middle pier of bridge.

On August 30, 1904, further authority was granted to expend $195.20 for urgent temporary repairs to the centre pier of the bridge, which had been undermined and cracked by the action of the freshets. The work was performed between March 16, and April 1, 1905, and consisted in the placing of stone filling, under and about the pier, and other temporary repairs.

In April, 1905, authority was granted to expend $500 for repairs of a more permanent nature to this centre pier, but owing to the depth of water and strong current the work had to be postponed, and had not been commenced up to June 30, 1905.

The total expenditure during the fiscal year 1904-05, is $1,210.55.

NORTH-WEST TERRITORIES.

ATHABASKA, LESSER SLAVE LAKE AND PEACE RIVER LANDING WAGON ROAD.

This road extends from Athabaska river to Peace River Landing, by way of Lesser Slave lake. It will open the north county to settlers from Edmonton to Peace river, a distance of 350 miles.

At last session of parliament, a sum of $15,000 was granted to be expended as follows :—$10,000 on the road from Lesser Slave lake to Peace River Landing, a distance of 100 miles, and $5,000 from Lesser Slave lake to Athabaska river, a distance of 250 miles.

This work consisted, especially on the north trail, in grading and levelling; in skidding low places; building ditches and small bridges, and burning the thick forest in close proximity to the road in order to allow the sun to dry up the ever-damp soil.

The south trail required more preliminary work; the old road was left aside for fifty miles, which has proven to be impracticable as it lay within the heart of the Swan Hills, at a height in some places of 700 feet above ordinary level. A pass was found at twenty-five miles east of Lesser Slave Lake settlement, and, by its use, the Swan Hills are crossed without any difficulty. The main work, therefore, on this south trail consisted in cutting down trees and opening this new road beyond the hills. The total expenditure during 1904-05 amounted to $3,537.46.

BATTLE RIVER BRIDGE.

In 1888, a contract was awarded for the construction of a wooden bridge across the Battle river, at Battleford, but the contractors having failed to carry out the work, the bridge was completed by this department in 1890.

In the spring of 1900, owing to severe floods, the bridge collapsed.

In 1902, a steel superstructure was erected on the old piers.

In the spring of 1904, during the floods, it was seen that the old crib piers could no longer safely carry the superstructure, and therefore, a contract was given to John Foley, of Ottawa, for the construction of concrete piers, built on the same centre line, 15 feet from the old piers. The work has progressed very satisfactorily and is expected to be completed by the end of October, 1905.

The expenditure during the fiscal year amounted to $2,137.76.

EDMONTON BRIDGE.

During the last fiscal year the sum of $95.85 was expended in making some slight repairs to the flooring of the Edmonton bridge.

LANGEVIN BRIDGE.

This bridge is situated on the Bow river, at Calgary; it was constructed in 1887. It is a Howe Truss structure of three spans, with trestle approach on the south side.

During the last fiscal year, the sum of $484.30 was expended in repairs; the three spans were brought to camber and the approaches put in good condition. This bridge is now in a fairly good state of repair, considering its age, and unlesss unforeseen accidents take place, will stand for another year.

CEMENT.

CEMENT LABORATORY,
OTTAWA, September 18, 1905.

E. D. LAFLEUR, Esq.,
Chief Engineer, Public Works Department.

SIR,—I have the honour to inclose herewith the annual report of this branch of the department for the year ended June 30, 1905.

I have the honour to be, sir,
Yours obediently,
(Signed) GEO. E. PERLEY,
Engineer in charge.

Since June 30, 1904, all samples submitted to this branch of the department have been fully tested and reported upon to you, chiefly among them being :—

The cement used at the Quebec extension of breakwater.

Three Rivers wharf, Depot Harbour landing pier and Masson wharf.

In all there were 237 samples submitted for test purposes, of which 107 were submitted by engineers of this department, 4 by the Railways and Canals department, 2 by the Marine department, 8 by cement agents, 4 by contractors and the remainder by manufacturers.

The cement industry, within the last year in Canada has increased to large proportions, new works have been inaugurated in the North-west Territories, Raven lake, Belleville, Ontario; Hull, Quebec; and Sydney, Cape Breton.

The first three use marl and clay as a basis, Hull uses limestone and clay and Sydney uses slag and lime.

The Hull work is the most up to date plant on the continent, the cement turned out by this plant has given every satisfaction as far as the tests have been carried out, the only drawback that may occur, being the likelihood of an outcropping of dolomitic limestone which will increase the magnesia and thereby reduce the effective life of the cement.

All these cements have been thoroughly tested physically and chemically analysed, and a record kept to check each year's output of the manufacturers.

During the year a 150,000 pound Riehle testing machine for beams, &c., was installed in one of the rooms recently used for physical tests ; to set this machine properly, it was necessary to remove the floor and blast out the rock underlying it to a depth of 11 feet ; in order to secure a dry foundation, a drain was made and connected with the exterior one.

As a foundation for the machine a pedestal of concrete was built as well as for the motor, shafting has been installed and arranged, thus having all machinery operated by the motor.

When the installation of all the machines was completed they were tested and found to give good satisfaction.

Below will be found a series of tranverse tests of reinforced concrete beams made with the new machine.

The first beam tested was made at headquarters, the others were made at Champlain, Depot Harbour and at the post office at Ottawa.

Test piece.—

W. I. reinforced concrete beam.
Dimensions—12 by 12 inches by 20 feet.
Distance between supports—18 feet.
Mixture—1, 2, 5, hand mixed.
Brand of cement—Star.
Stone broken to ½-inch.
Age—One month.

Reinforcing 4, ¾-inch plain W.I. bars, 2 inches from face equidistant from neutral axis.

Load.	Increments of Deflection.	Total Deflection.	Remarks.
	In.	In.	
1,000 lb.	Nil.	Nil.	
1,500 "	1/16	1/16	
2,000 "	Nil.	1/16	
2,500 "	1/16	1/8	
3,000 "	1/16	3/16	First crack, hair line.
3,500 "	1/16	1/4	
4,000 "	1/16	5/16	Crack visible across bottom.
4,500 "	1/16	3/8	
5,000 "	1/16	7/16	Third crack, visible across.
5,600 "	1/16	1/2	Cracks opening on sides.
6,000 "	1/16	9/16	
6,500 "	1/16	5/8	Principal crack 1/32 inch wide.
7,000 "	1¾ to 3	1 5/16	Top face crushed, W. I. bars clipped.

NOTE—Allowing for discrepancies due to crude method of measuring deflection, the 'elastic limit was probably reached with a load of 5,600 lbs. after which the increments of deflection increased rapidly, the total deflection becoming greater than 1/360 span.

Second beam tested December 16, 1904.

Test piece:—

Reinforced concrete X-tie for Depot Harbour.
Dimension—12 by 12 inches by 5½ feet.
Distance between supports—8 feet 2 inches.
Mixture—1, 2¼, 2½, hand mixed.
Brand of cement—Samson.

Stone—Hornblendic gneiss 1-inch.
Age—Four months.

Reinforcing, 4, ½-inch W. I. bars, equidistant from neutral axis, and 2 inches from faces, clinched at ends.

Load.	Increments of Deflection.	Total Deflection.	Remarks.
	In.	In.	
1,400 lb.	Nil.	Nil.	
4,000 "	1/16	1/16	
6,000 "	1/16	1/8	Cracked to 3 inches up sides.
6,500 "	Nil.	1/8	
6,600 "	1/16	3/16	Failing by crushing top face.
6,700 "	13/16	1	
7,000 "	1/16	1 1/16	Crack opened ¾ inch.
5,000 "			Load beam could bear after rupture.

NOTE—After failure the rods slipped at one end, probably on account of a 2-inch stone which was loosened from the mixture at this point.

Third beam tested December 20, 1904.

Test piece :—Reinforced concrete X-tie made at Depot Harbour.

Dimension—12 inches by 12 inches by 10 feet 6 inches.
Total weight of beam—1,380 pound.
Weight per cubic foot—135 pound.
Mixture—1, 2¼, 4½, hand mixed.
Brand of cement—Samson.
Stone—Hornblendic gneiss, 1 inch.
Age of beam, 4 months.
Distance between supports—8 feet 10 inches.

Reinforcing, 4½ inches W.I. bars equidistant from neutral axis and 2 inches from faces, clinched at ends.

Load.	Increments of Deflection.	Total Deflection.	Remarks.
	In.	In,	
1,000 lb.			
1,500 "			
2,000 "	Nil.		
2,500 "	"		
3,000 "			
3,500 "	Nil.		
4,000 "	"		
4,500 "			
5,000 "			
5,500 "			
6,000 "	Nil.		
6,500 "			
7,000 "			First crack, hair line.
7,500 "			span ap.
6,800 "			Crack inch wide.
7,150 "			
7,100 "			
6,880 "			
6,960 "			
7,010 "			Second crack 2′ 6″ from center.
7,140 "			Third crack 9′ from center.
6,950 "			
7,350 "			
7,300 "			
7,310 "			Beam failing by shearing of concrete above tension rods.
7,400 "			

NOTE—Rods had not slipped, after supporting maximum load, beam held up for considerable time, load slighter, deflection only increasing.

Fourth beam, tested March 15, 1905.

Test piece :—Reinforced concrete beam, made at Champlain, Que.

Dimension—12 inches by 12 inches by 5 feet 6 inches.
Distance between supports—5 feet.
Proportion of mixture—1, 2, 4.
Brand of cement—White Star, Belgium.
Kind of stone—Shale.
Age of beam—Two months.

Reinforcing, 2½ inches along and near the outer face, and 2¾-inches rods along and near the inner face.

Load.	Increments of Deflection.	Total Deflection.	Remarks.
	In.	In.	
6,400 lb	1/16	1/16	
8,000 "	1/32	3/32	
9,700 "	5/32	1/4	
9,800 "	1/32	9/32	
10,600 "	1/8	7/16	Crack ½ inch wide.

NOTE—This beam was broken by accident before it was ready to be tested, so the first deflection and the hair-line crack were not noted.

Fifth beam, tested March 20, 1905.

Test piece:—Reinforced concrete beam, made at Post Office, Ottawa.

Dimension—12 inches by 7 inches by 17 feet.
Total weight of beam—1,440 lbs.
Weight per cubic feet—146 lbs.
Distance between supports—16 feet.
Proportion of mixture—1 cement, 4 stone.
Brand of cement—Rathbun's Star.
Kind of stone—Nepean sand stone.
Age of beam—2 months.

Load.	Increments of Deflection.	Total Deflection.	Remarks.
	In.	In.	
660 lb	1/16	1/16	
800 "	1/16	1/8	
1,000 "	1/16	3/16	
1,200 "	1/16	1/4	
1,400 "	1/16	5/16	Hair-line crack, 8 inches from centre.
1,600 "	1/16	3/8	
1,800 "	Nil.	3/8	
2,000 "	1/16	7/16	
2,200 "	3/16	5/8	Crack opening.
2,400 "	1/16	11/16	Elastic limit.
2,600 "	3/16	7/8	
2,800 "	5/16	1 3/16	Crack from 1/16 to ⅛ inch wide.
3,000 "	1/16	1 1/4	
3,200 "	1/16	2 5/16	Casting snapped.

NOTE—It was found on removing the concrete from the cast iron after breaking, that the ½-inch rod at base of casting had stretched 2 inches and showed no sign of breaking under the load of 3,200 lbs.

A number of crushing tests have also been made of bricks, stone, mortars, &c., for the architects branch and for general information.

The engineers of the department have been advised on the best method to adopt in mixing mortar, concrete, &c., information has also been given to the Railways and Canals, Militia and Marine and Fisheries Departments.

On account of the continued increase of work in this branch, it was found necessary to enlarge the staff, two assistants have been employed, one on July 15 and the other on August 10, 1904.

Since the time they joined the branch, they are becoming proficient in the art of manufacturing briquettes, the tests being more uniform, give better satisfaction than heretofor.

A very instructive meeting of the Society of Testing Materials in the United States, was attended by me in June. The papers read and commented upon were dealt with by the manufacturers, users and testers, the latter, both physical and chemical, thus giving the three faces of the material and a better insight to the article generally.

CONCLUSION.

I desire to call your attention to the increase in the number of works under construction as well as to the nature of those works. Some years ago all our harbour works were built of timber cribwork or pile-work, but, of late, we are introducing, as much as possible, a permanent style of construction, and where appropriations of parliament have been sufficient, substantial structures of steel or concrete, or both combined, have been erected.

We have remodelled our cement testing laboratory and made of it one of the most modern of its kind, equipped with the best and latest testing machines.

In addition to the general increase in ordinary work, we are, at present, nearing the completion of the Georgian Bay Ship Canal Survey, under the able direction of Mr. Arthur St. Laurent, C.E.; the results of this extensive work will soon be available and the progress report, published as an appendix to this report, will, I am sure, not only prove of interest to men of the profession, but to the general public who take an interest in the development of our great waterways.

It is with sincere regret that I record the death of Major Henry A. Gray, resident engineer, Toronto. A man of sterling qualities and an engineer of undisputable abilities, Mr. Gray leaves behind him a vivid souvenir of his strong personality.

In closing this report, I wish to extend to all my assistants my most sincere thanks for their faithful services and untiring energy, and to again assure them that I fully appreciate their efforts to promote the efficiency of this branch of the department and the interest of the public.

EUGENE D. LAFLEUR,
Chief Engineer.

APPENDIX TO PART 4

INTERIM REPORT

ON THE

GEORGIAN BAY SHIP CANAL SURVEY

BY

Arthur St. Laurent, C.E.

DEPARTMENT OF PUBLIC WORKS OF CANADA,
GEORGIAN BAY SHIP CANAL,
OFFICE OF THE ENGINEER IN CHARGE,
OTTAWA, November 3, 1905.

Sir,—I have the honour to submit herewith my annual report regarding the prosecution of the Georgian Bay Ship Canal survey work, during the fiscal year ending June 30, 1905.

This report deals particularly with the organization and progress of the survey undertaken by the department, without arriving at any conclusions, the field work not being completed.

I have the honour to be, sir,

Your obedient servant,

A. ST. LAURENT,
Engineer in Charge.

EUG. D. LAFLEUR, Esq.,
Chief Engineer,
Public Works Department,

PRESENT SURVEY.

DESCRIPTION OF WORK.

Staff organization and limits of each section of the survey.

During the session of 1904, the sum of $250,000 was granted by parliament, for the purpose of making a complete survey of the Ottawa river navigation route, and arrive at a close estimate of cost.

The proposed navigation route extends from the mouth of the French river down to Montreal, a distance of about 425 miles.

It follows the French river and Lake Nipissing, passes, at the height of land, through Trout, Turtle and Talon lakes, follows the Mattawa river to its junction with the Ottawa, and thence down the Ottawa as far as Montreal, leaving the bed of the river occasionally where conditions are such that it is advisable to do so.

It was decided from the beginning that the information gathered to study the feasibility of the route, to prepare plans and to make a close estimate of cost for the whole route, should be entirely original and that old plans from old partial surveys should be used only as preliminary information and for general guidance.

This will involve actual detailed surveys, on a larger scale perhaps than anticipated, and it will make the survey relatively expensive but for a project of that magnitude and importance, it will prove much more satisfactory in the end, to collect actual and complete data from the present field operations.

To this end, and to get results within reasonable time, it was deemed necessary to place a large force of engineers in the field. In August, 1904, orders were issued to prepare for this work, to collect the necessary camping outfit, instruments, &c., in order to make an early start.

The force was organized at the end of September and work commenced about the beginning of October. In the instructions given, which were supplemented by complete survey rules, the object of the survey is stated as follows :—

The immediate object of the survey is, that when the notes are reduced and plotted, a location may be projected on the plans, for a ship canal of not less than 22 feet in depth, a profile drawn and a correct estimate made of the kind and amount of all material found necessary to be excavated, the kind, character of foundation and dimensions of all walls, locks, dams and other structures, also the estimating of all extra right of way required for the canal proper, where it leaves the bed of the rivers and for spoil banks and overflowed area.

The route to be surveyed was divided into three districts, designated as the Nipissing, Ottawa and Montreal districts, each in charge of a district engineer.

Each district was sub-divided into three sections, each in charge of a sectional engineer, thus making nine (9) sections in all.

Each sectional engineer, has under him two assistant engineers, two rodmen, two chainmen and seven or eight labourers.

The names of the parties in charge and the limits of each district and section are as follows :—

Eugene D. Lafleur, chief engineer.

A. St. Laurent, engineer in charge at Ottawa.

S. J. Chapleau, district engineer, in charge of sections 1, 2 and 3, between the Georgian bay and the head of the Rapids des Joachims, a distance of about 170 miles.

E. J. Rainboth, district engineer, in charge of sections 4, 5 and 6, from the head of the Des Joachims rapids to the foot of the Chaudière falls, at Ottawa, a distance of about 140 miles.

C. R. Coutlee, district engineer, in charge of sections 7, 8 and 9, from the foot of the Chaudière falls, at Ottawa, to Montreal, a distance of 120 miles.

A. T. Genest, assistant engineer at headquarters.

A. McDougall, hydraulic engineer.

A. R. Dufresne, in charge of test boring parties.

Section No. 1.

A. J. McDougall, in charge.

From Lake Nipissing, over divide through Trout and Turtle lakes to Lake Talon, a distance of twenty-one miles, but involving the investigation of several possible routes.

Section No. 2.

H. P. Bell, in charge.

From head of Lake Talon, through the Mattawa river into the Ottawa, at Johnson's rapids, a distance of twenty-four miles, requiring also the examination of two or three different routes.

Section No. 3.

Wm. Cross, in charge.

From Johnson's rapids, through Deux Rivières and Rocher Capitaine rapids, to head of Des Joachims, a distance of fifty-six miles.

Section No. 4.

G. L. Griffith, in charge, until January, 1905, replaced by A. J. Matheson.

From head of Des Joachims rapids, through north and south channels of Allumette island, to Fort Coulonge, about seventy miles.

Section No. 5.

A. Robert, in charge.

From Fort Coulonge, through Calumet, Portage du Fort, Snows, to head of Chats rapids, a distance of forty miles.

Section No. 6.

W. G. Warner, in charge (until April 25, 1905, replaced by H. A. K. Drury).

From head of Chats rapids, through Lake Deschenes, to the Gatineau river, a distance of about forty miles.

Section No. 7.

E. E. Perrault, in charge.

From Gatineau river, down the Ottawa, through Grenville rapids, to Carillon rapids, a distance of about seventy miles.

Section No. 8.

C. E. Macnaughten, in charge.

From Carillon rapids, through Lake of Two Mountains and Ste. Anne's rapids, to head of Lake St. Louis, a distance of twenty-five miles, but requiring a survey of over fifty miles.

Section No. 9.

L. R. Voligny, in charge.

From head of Lake St. Louis to Montreal. With investigation of the Back river channel to the St. Lawrence, a distance of twenty-five miles, but requiring a survey of fifty miles.

Since these parties were organized, another small party has been placed on Lake Nipissing, to take soundings across the lake and collect general information, as to flooded lands at high stages of the water. Mr. F. H. Peters, in charge.

Moreover, as it was absolutely necessary to refer all the levels of the survey to a known datum, it was decided to adopt the American datum of mean sea level, and Mr. Chaloner, who has been doing precise levelling for this department for many years, under the direction of Mr. R. Steckel, was detailed to transfer the elevations as determined by the United States Coast and Geodetic Survey to different points on the proposed canal route.

HYDRAULIC ENGINEER.

The project of deep navigation from the Georgian bay to Montreal involves many important hydraulic problems, which have to be considered. Among these are the question of water supply of the summit level between Lake Nipissing and the Mattawa river, the many different water-power interests on the Ottawa river, the lumber interests, the question of creating storage reservoirs to keep the low water level at a higher stage during dry seasons, &c., &c. It was important to arrange to make careful and uniform investigations with regard to these questions, and a recommendation was made to have an expert hydraulician engaged on this work. Mr. A. McDougall, of Ottawa, was appointed to investigate and report fully concerning these matters.

In order that the survey may have some degree of uniformity, a set of rules was prepared by the engineer in charge, by request of the chief engineer, and these were distributed to each party for their guidance and information. These rules are very complete and need only to be supplemented from time to time as to detailed work, in accordance with conditions encountered.

PROGRESS OF WORK.

The different parties after having outfitted at Ottawa and received their instruments, &c., left for their respective destinations about the end of September and were fully at work all over the route by October 2, 1904.

Up to the end of the fiscal year, the progress of the work may be summarized as follows:—

NIPISSING DISTRICT.

The district covers that part of the Ottawa river that lies between Des Joachims rapids (which is some forty odd miles above Pembroke), and Mattawa; then the Mattawa river, Lake Nipissing and the French river to the Georgian bay on Lake Huron.

That part of the country lying between Des Joachims rapids and Lake Nipissing was divided into three sections, a lake party being subsequently formed to investigate the part of Lake Nipissing which lies between North Bay and Vases creek, on the north-east shore of the lake, across to Frank's bay or the upper entrance of the French river.

After a careful investigation of all available plans and profiles of previous surveys, it was determined to obtain topography to the highest possible contour of all flooded areas that would of necessity follow the erection of dams and other regulating works.

From Lake Nipissing to the head of the Mattawa river, in all about 22 miles distance, intervenes the height of lands which separates the waters of the Lake Huron basin and those of the Ottawa river.

About three miles from North Bay commences a chain of lakes, Trout, Turtle and Talon lakes, which lie almost in a direct line with the head of the Mattawa, the highest of these, Trout lake, being 23 feet above Lake Nipissing.

In former proposals for this canal, the Lake Nipissing level was proposed to be raised and Trout lake lowered a few feet in order to form a summit level having Lake Nipissing as a feeder.

It was also proposed to lower Trout entirely to the level of Nipissing, thus involving very heavy rock cuttings all through the height of land to the Mattawa.

The raising of Lake Nipissing 16 or 20 feet as proposed, which might have been a fair proposition half a century ago, seems now impraticable, as the shores of the lake which are very low have since been well settled. It would involve the flooding of a portion of the town of North Bay and of many villages and farms, and also the main track of the Canadian Pacific railway.

The cutting down of the whole summit level to Lake Nipissing level would entail a very large expenditure to give a first class canal for large boats. For these reasons it was deemed advisable to consider a summit level at or about Trout lake elevation, and to study thoroughly the question of water supply for that level, as there seemed to be a possibility of obtaining from various sources the water required.

With this end in view a raised water surface profile was adopted with a summit level embracing Trout, Turtle and Talon lakes, all to the Trout lake level, and between the lower end of the latter lake to the adopted raised level of the pool at the head of Des Joachims rapids.

The survey has proceeded on these lines, and with the information being gathered, it will be possible to project upon the maps the location, for any size canal to a depth of 24 feet draft having a bottom width of 300 feet, from which profiles may be drawn and a correct estimate made, even if it is ultimately decided to cut down to Nipissing lake level, in case the water supply investigation proves that it will be inadequate at the higher reach proposed. On locations where curvature will exist, the

contour has been sufficiently established to cover any possible increase in the bottom width of prism, hereafter to be established to include a curve of 6°.

Between these different lakes, and in fact at the head of tae Mattawa itself, two or three different possible routes have been found by investigation, through reconnaissance and track traverse. Comparative profiles have been obtained of these different routes, and their centre line sectional areas computed to grade for comparison. This has led to the investigation of different locations between two given points and has proven valuable in eliminating routes that for the time looked promising.

The progress of the work in the Nipissing district has been very satisfactory.

On section 1, the topography has been completed between Lake Nipissing and the foot of Turtle lake, together with the greater part of the Mattawa river below Turtle lake. There remains about one month's work to complete this section, and it is proposed to employ the same party to continue soundings on Talon lake and to obtain supplementary information with regard to Lake Nipissing and the French river.

Section 2, which is located between Mattawa and Talon lake, will be completed, it is expected, about the latter part of December.

There are three possible routes between the Talon lake level and Lake Champlain on the Mattawa, which are being investigated. One from Sand bay on Talon lake to the Paresseux falls on the Mattawa, one following the natural line of the Mattawa from Talon chute, and the third passing by Talon chute also, to the lower end of the Pimisi lake, thence across to Johnson's lake, Smith's lake, Crook's lake, Moore lake, and running into the Mattawa again through a blind arm at the western end of an expansion of the River Mattawa called Lake Champlain or Plein Chant.

It has been found necessary to investigate other routes than the Mattawa river itself, on account of its narrow width and irregular course at the head ; there are also two changes of direction of 90° each within a short distance, and which occur in close proximity to possible lock structures. The two other locations now being investigated are much straighter and shorter. On the Pimisi and Johnson lakes location, this would necessitate a diversion of the main line of the Canadian Pacific railway in order to prevent two crossings; but the reconnaissances already made have proved that this can be accomplished by an easier grade and straighter alignment than now exist.

On section No. 3, the triangulation, closed traverse, soundings and topography have been completed from Mattawa to nearly the foot of Deux Rivières rapids and close check levels made between Mattawa and Rocher Capitaine, including in all about 54 miles of closed traverse and levels.

There remains some very rough and tedious work to do on that section above and below Rocher Capitaine and it is not expected that the survey party will reach the Des Joachims rapids, the end of the section, before January, 1906.

The country in this district is in many places exceptionally rough and very thickly wooded; in consequence of which the topography necessary for the estimate can only be obtained very slowly. At Rocher Capitaine, it may be found advantageous to leave the bed of the river, at the head of the rapids, to follow a valley presumably an old river bed, which joins the river again immediately below the rapids. This would save many degrees of curvature and probably the construction of a high dam. This valley will be surveyed and developed as to contours, levels, &c.

LAKE PARTY.

During December, 1904, a party was formed to obtain all soundings between the north east shore of Lake Nipissing in the vicinity of North Bay and Frank's bay at the entrance of the French river. This was in order to connect with the surveys and soundings made in 1901, under the direction of the late J. W. Fraser.

Two routes have been investigated: one to the north and one to the south of the Manitou islands.

On the completion of this work this party was detailed to establish the 5 foot and 10 foot contours above the high water plane of Lake Nipissing, with a view of ascertaining the probable area of flooded lands in case it would be found advisable to maintain the lake level above normal height.

The party is now engaged on this work.

In view of the work being done by the precise level party in carrying a line from the established Rouses's Point and Coteau Landing B. Ms. through to North Bay along the line of the Canadian Pacific railway system, to the datum of mean sea level, at Governor's Island, N.Y. (to which all hydrography of the upper lake charts are reduced), automatic gauges have been placed at Toronto, Collingwood, and foot of the French river, and their zeros connected to permanent B.Ms. in their immediate vicinity.

The elevation of these gauges, when established through water level transfer from similar United States gauges, will prove a check on the work now being done by the precise level party.

For details as to the survey in the Nipissing district, methods of work, &c., refer to district engineer S. J. Chapleau's report in appendix D.

OTTAWA DISTRICT.

Details as to the progress of the work are given in appendix E. in a report presented by Mr. E. J. Rainboth, the Ottawa district engineer.

This district comprises sections 4, 5 and 6 of the Ottawa river, and extends from the head of Rapid Des Joachims, to the mouth of the Gatineau river, below the Chaudière falls. Including the channels north and south of Allumette islands, the total length of river channels to be surveyed is about 184 miles.

At the end of the fiscal year, work had made fair progress and was being pushed actively.

On section 4, from Des Joachims to Coulonge, about 44 miles of river out of 86 have been completely surveyed, over which levels and soundings have been taken.

Some soundings have also been taken in the lower river stretches of this section, and it is estimated that it will take from 6 to 8 months to complete.

At Des Joachims rapids, it has been decided to carefully develop a short cut from the head to the foot of the rapids through what is known as the McConnell lake valley, which is supposed to have been at one time the old river bed, the latter having a length of about 4½ miles. Of this, McConnell's lake occupies 2 miles of deep water in length, and an average width of 1,000 feet. The valley above and below the lake connecting with the river is relatively low, and the location seems to be good as to direction and curvature.

This is now being surveyed.

From the rapids down, for a distance of twenty-eight miles, is a magnificent stretch of river called the Deep river, with a good wide channel over 40 feet deep. Below, the river gets shallower and dotted with islands, and then widens into what is known as Upper Allumette lake containing numerous shoals and over 200 islands, with a tortuous channel reaching to the lower narrows.

Below the Allumette lake is Allumette island where the river is divided into two channels, the south or Pembroke channel, and the north or Culbute channel which is about ten miles shorter than the south channel, but is much narrower.

At the end of the fiscal year the survey on that section had reached a point about five miles above Pembroke.

On section 5, which extends from old Fort Coulonge to the Chats rapids, a distance of about fifty-six miles, the work has progressed satisfactorily, but much yet remains to be done, the work being slow on account of many natural difficulties met with. This section will take from six to eight months to complete.

From Fort Coulonge to La Passe near the head of Calumet island, a distance of about five miles, the river or Coulonge lake is divided into numerous channels by about eighteen islands.

From the head of Columet island the river divides into two main channels known as the northern or Calumet channel, and the south or Rocher Fendu channel.

The Calumet channel for a distance of about seventeen miles runs through alluvial deposits and has a depth of from 7 to 25 feet, and an average width of 600 feet, the shallows being silt and sand that can be easily dredged.

On this channel about four miles from the head, the river makes a very sharp bend around a point of the island where a marshy bay called the Grand Marais extends for about a mile in the direction of Coulonge village situated on a narrow neck of land between the Coulonge and Ottawa rivers.

Across that neck as the ground is alluvial and low, a direct route for the canal through the Grand Marais can be obtained about five miles shorter than by following the river which is narrow and tortuous. The length of the cut will probably be less than two miles including Grand Marais. As this location has many good points in its favour, it is now being investigated.

Below Bryson, on the Calumet channel is Calumet falls where the country is again rocky and very difficult.

From the head of these falls to Portage du Fort, the river falls 100 feet in eleven miles, and from Portage du Fort to the Chats, the fall is 16 feet in four and a half miles, the channel being dotted with numerous rocky islands, many of them obstructing possible navigable channels. This is no doubt a most difficult portion of the Ottawa river, as no matter where the canal is finally located either on the north or Calumet channel or through the south or Rocher Fendu, it will prove a very expensive portion of river to improve.

The Rocher Fendu channel passing south of Calumet island is practically navigable from the head of the island for about four miles, after which the river runs through rocks, and is broken up into falls and rapids, and a great number of islands, leaving no definite channels. It has not been decided yet to survey this channel ; a decision will be reached only after thorough exploration.

From Portage du Fort to the Chenaux rapids there is a navigable stretch of six miles of over 25 feet in depth with a couple of shoal places.

These are being located.

The Chenaux rapids have only a slight fall of from 1 to 3 feet, according to the stage of the water and immediately below them, the river expands into Chats lake proper, eighteen miles in length and one to two miles wide, with a deep channel. The soundings of this lake still remain to be done.

Section six of the Ottawa district extends from about two miles above the head of the Chats eastward to the mouth of the Gatineau river, a distance of forty-two miles.

The Chats rapids and falls, with a descent of fifty feet, in four miles, and over 300 islands render this, one of the most difficult portions of the river with which we have to deal. The survey of this part is naturally very tedious, as it has to be very complete in order to allow the selection of the most economical and suitable canal location to be made.

Below the Chats, for thirty miles, stretches Lake Deschenes with an average width of one and a half miles and a channel from 19 to 25 feet deep. From Lake Deschenes there are five miles to the foot of the Chaudière, in which the fall is 60 feet.

This part of the river is now being surveyed thoroughly and possible routes, leaving the bed of the river above the Chaudière and joining it again somewhere below, are being investigated in order to avoid if possible disturbing the many power interests situated at the falls. However, the possibility of keeping to the bed of the river is also being looked into.

The work on this section is well advanced, and it is expected that the field work will be finished in November or December.

For more details as to the work carried on in this district see Appendix E.

MONTREAL DISTRICT.

(Mr. C. R. Coutlee, in charge.)

This district extends from Ottawa to Montreal, and is also divided into three sections, Nos. 7, 8 and 9.

The survey work on section 7, which extends from the Gatineau river down to Carillon, a distance of about sixty-six miles, has now reached L'Orignal, fifty odd miles below Ottawa.

This is a very good stretch of river. It is generally wide, but will require heavy dredging at many places for deep navigation.

There seems to be a fall between Ottawa and Grenville of about 8 feet at high water, but at low water stages there is practically no fall.

A special feature on this stretch is the heavy rise of the river in the upper portion, at flood time, caused by the large Gatineau flood which flows in conjunction with the rapid flow at the Chaudière falls, about two and one-half miles above, the Gatineau emptying just above at a contraction in the Ottawa at Rockliffe. On this account it may be necessary to consider the control of the water flow of the Gatineau river to some extent.

That portion between Grenville and Carillon has not yet been surveyed, and will require careful study ; Grenville to Greece Point, nearly six miles, is a continuous rapid. Long Sault, which is surmounted by the Grenville canal, making a rise of 40 odd feet. Grenville to Carillon is a level which was formed by the Carillon dam and which drowned out the Chute à Blondeau rapid.

The Carillon canal is three-quarters of a mile long with two locks, and a total rise of 16 feet.

It is expected that this section down to Carillon will be completed by October next.

Section No. 8.

From Carillon down to the foot of Lake of Two Mountains where it empties by four channels, two back of Montreal empties into the St. Lawrence and by the Vaudreuil and St. Anne rapids, into Lake St. Louis.

This section is twenty-six miles long, but an alternative route north of Isle Bizard makes ten miles additional work.

This being practically all lake work, a very large area has to be covered to carry on a complete investigation.

Many low-lying islands and considerable low lands have had to be surveyed as the possibility of raising and maintaining the water levels at a higher stage will have to be considered.

This section is so well advanced that it will probably be completed by the beginning of September. It is the intention to put this party on the Pembroke channel as soon as they are through with No. 8.

Section No. 9.

This section embraces surveys along the south or Lake St. Louis side of Montreal island, and also along the north or Back river side. Along the south side it is fifteen miles to Lachine and ten miles thence to Victoria bridge, Montreal. The Back river survey extends from St. Anne to Isle Bizard and down to Bout de L'Ile, a distance of over forty miles.

All the St. Lawrence side has been surveyed down to Montreal, including a traverse and cross sections along the Lachine canal, and it is probable that the Back river survey wil be finished about the beginning of November.

For methods of work, description of work done and other details refer to Appendix F.

HYDRAULIC INVESTIGATION.

In Appendix G will be found a detailed statement by Mr. Alexander McDougall, hydraulic engineer, as to the work done up to June 30, in connection with this important part of the investigation relative to the projected canal.

Generally, this investigation consists in collecting all available data referring to the present condition of the established water-power plants as well as all other unused powers on the canal route; to study the regime of the rivers to be canalized and collect the necessary information to strike out the curves of low and high water; to study the probable effects on low stage of the Ottawa river and of impounding surplus water in the spring in the upper reaches of the river ; to make a complete study and report with regard to the water supply for canal purposes at the height of land between Lake Nipissing and the head of the Mattawa river, all available sources of water supply being investigated.

The work done so far has been divided into two general divisions: one comprising the water supply for canal purposes at the height of land and vicinity, the other the general study of the Ottawa river and its tributaries.

As this work is still in progress, no figures nor deductions will be given. Those given in Appendix G are only approximate and mentioned only for a better understanding of the question.

In general, the water supply at the height of land is studied for a possible traffic of 10,000,000 to 20,000,000 tons. The investigation so far, though not complete, seems to indicate that the supply from the immediate water shed of Trout, Turtle and Talon lakes at the height of land will not be sufficient for the amount of traffic assumed. But the possibility of getting an extra supply of water from an adjacent water shed and by impounding water is now being looked into with every chance of meeting with favourable conditions.

The quantity of water which is required for canal purposes will necessarily vary with the size of locks which it is decided to adopt, and the amount of traffic and size of vessels, which will be ultimately assumed in relation to the project. However, for the purposes of the investigation, the supply required is considered under six different headings, as follows :—

1. Filling the locks.
2. Leakage of gates.
3. Evaporation and seepage.
4. Leakage over the waste-ways.
5. Power to operate gates.
6. Power for electric lights.

To meet these conditions and for the different purposes above mentioned, no doubt it will be found that over 1,000 cubic feet of water per second is required at the summit.

The study of the run-off in the water shed is rather involved as the lumbermen have built storage dams on most of the lakes, the waters of which they use in the spring and during the summer, to drive logs. These dams are opened and closed many times during the season, and require close watching in order to find out the total run-off from any particular part of the watershed.

For this reason, a very complete system of gauges had to be established on all the lakes of the watershed and daily readings recorded, and the conditions at dams noted, in order that the different flow measurements taken from time to time and their results may be deducted under exactly known conditions.

Rain fall observations have also been carried on at the same time and some experiments as to the amount of evaporation at the height of land have been made, and are being continued.

Gauges have been placed also at many points on the Ottawa river and tributaries, and systematic measurements commenced in order to collect the necessary information to strike out the curves of discharge of the river. The daily water levels along the route are being noted, and statistics of rain fall, snowfall and evaporation, &c., are being collected.

Special flow measurements of the Ottawa river are being carried on at the following places: at its four branches above Montreal: at Besserer's grove, twelve miles below Ottawa; at La Passe near Coulonge, and at Deux-Rivières below Mattawa, where the proposed canal will join the Ottawa; also on the Mattawa river.

As the tributaries between these different sections are also being measured, it will be easy to determine with sufficient accuracy the quantity of water required at any other section of the river for purposes of regulating works, &c.

For details, methods of work, and tabulated information already collected, refer to Appendix G.

TEST BORINGS.

As soon as it was possible to indicate some of the places where test borings are required along the route of the proposed canal, three boring parties were organized, one for each district under the direction of Mr. A. R. Dufresne, one of the departmental engineers.

Three Pierce test boring machines were purchased and boring party No. 1 was placed at work at Mattawa at the beginning of May.

Test boring party No. 2 was organized in June and was placed at work in the Montreal district.

Test boring party No. 3 will be placed at work very soon in the Ottawa district.

The material encountered in many cases where borings have been made so far, consisted of closely compacted boulders and gravel, generally overlying fine sand.

This deposit of boulders and gravel is of glacial drift origin, and is characteristic, to a greater or less extent, of the Archaean formation throughout the Nipissing and most of the Ottawa districts.

Considerable trouble, of course, has been experienced in using the boring machines, where this boulder drift is encountered and in many cases the pit method has had to be resorted to, in order to pass through the top layers of boulders and gravel. When this was accomplished, the machine was set up and satisfactory progress was made.

Penetration by means of the Pierce machine, in the underlaying strata, is a succession of driving a two-inch casing, and washing out the material inside with 1-inch pipe connected with a force pump.

Mr. Dufresne reports that the use of dynamite has often been resorted to, with considerable success, in connection with the use of the Pierce apparatus, in loosening up compact material, and breaking up occasional boulders obstructing the bore hole.

Samples of the different classes of material encountered are kept in properly labelled bottles, for future reference.

In the Montreal district, the nature of the material was such that no difficulty was experienced and rapid progress has so far been made.

A detailed statement of the borings made up to June 30, with remarks as to the character of material encountered, force employed, and instructions given to assistant engineers in charge of boring parties, &c., is given in Appendix H.

PRECISE LEVELLING.

This work, which is under the direct charge of Mr. Chas. F. X. Chaloner, who has had a large experience in connection with geodetic levelling, consists as explained

before in this report, in transferring the mean sea level datum as adopted, by United States engineers, to different points of the proposed canal route, in order that all the elevations on the different sections may be worked or reduced to the same datum.

This work commenced in November, 1904. The American datum was first transferred from the Canadian Pacific railway bridge at Lachine to St. Anne, and then checked from St. Anne to Coteau Landing with the Soulanges canal system of levels based also on the American datum. Then the railway lines were generally followed up, touching the Ottawa river at convenient points, and at the end of June, the party had reached North Bay. As it is very important that this line of precise levels be closed somewhere for check, where the elevation above mean sea level is available as determined by the United States Coast and Geodetic Survey, it is the intention to close this line on the Toronto bench marks, and to push also as far as Collingwood on the Georgion bay in order to obtain a check for the French river levels.

For more details refer to appendix I.

CONCLUSION.

The past winter with its extreme conditions of severe frost and heavy snowfall, retarded the survey very materially.

On the lakes and rivers, the waters overflowing the top of the ice formed over a foot of slush under the snow, thus creating the worst conditions possible to take soundings. The constant wind and cold made it very uncomfortable for the men. Moreover the roads to and from the work at the different camps, were almost impassable the whole winter; they had to be opened almost every day on account of constantly drifting snow.

All these causes have contributed to considerably increase the cost of the survey, and to retard the probable time of completion.

Notwithstanding these unfavourable conditions, good substantial progress has been made, and the field force certainly deserve great credit for their efforts in the interest of the work, and the amount of work already performed. It is hoped that most of the survey will be completed late in the fall, excepting on two or three sections, which are longer than the others, and where physical difficulties are such that they may be completed only some time in January or February next.

It is understood also that in 1906, while putting down on paper the final scheme as adopted, it will be necessary to send out one or two parties at different points to supplement the information, if required, where structures, &c., will be located.

I expect that the time necessary for all engineers and draughtsmen, to make all computations, quantities, final plans, &c., will extend over a year after the field work has been completed.

In many places, different possible routes will have to be estimated and compared, and the amount of office work in connection with trial and final lines will be considerable.

Questions involving large and difficult problems have to be looked into very carefully, as in presenting a report on this important project, and arriving at an estimated cost, nothing should be assumed, or left indefinite.

This work, before it can be undertaken as a national enterprise, demands an exhaustive study, and the office work in this connection will be long and tedious, before any final and complete report can be given.

With regard to the field work, reconnaissances by the district engineers and the engineer in charge have been systematically made in order to limit the work as much as possible.

Last winter, I personally examined, at different times, the greater portion of the Nipissing and Montreal districts.

These explorations are being continued with a view of directing the survey, and also to give an opportunity to the district engineers to see the whole route and become familiar with its different features.

As this is only a progress report, and as the work is not advanced enough to enable me to form any definite opinion, no attempt is made to formulate any statement as to the practicability of the proposed undertaking or its probable cost. Any conclusion that may have been reached now in connection with some of the problems involved, may be materially changed when all the necessary information has been collected.

Before concluding, I wish to express my sincere appreciation to every one connected with the staff for the interest shown in the work, and their devotion to their duties. Men in the field have had a hard task before them, and taking everything into consideration, I believe they have done their best and have done wonderfully well. I must also commend the employees at headquarters for their good will and excellent work.

I have no doubt that the results achieved in the end will prove very satisfactory.

I have the honour to be, sir,

Your obedient servant,

A. ST. LAURENT,

Engineer in Charge.

APPENDIX B.

Table of Distances of all Water Routes.

ROUTE via GEORGIAN BAY SHIP CANAL.

Via Great Lakes and Georgian Bay Ship Canal to Montreal.	Distance to Montreal.	Montreal to Liverpool via Belle Isle.	Total Distance.
Fort William to Liverpool	920	3,189	4,109
Duluth "	1,042	3,189	4,231
Milwaukee "	892	3,189	4,081
Chicago "	958	3,189	4,147

ROUTE via RIVER ST. LAWRENCE CANALS.

Via Great Lakes, Welland and River St. Lawrence Canals to Montreal.	Distance to Montreal.	Montreal to Liverpool via Belle Isle.	Total Distance.
Fort William to Liverpool	1,221	3,189	4,410
Duluth "	1,343	3,189	4,532
Milwaukee "	1,180	3,189	4,369
Chicago "	1,245	3,189	4,434

UNITED STATES ROUTE.

Via Great Lakes, Erie Canal, Hudson River and New York.	Distance to New York.	New York to Liverpool.	Total Distance.
Fort William to Liverpool	1,359	3,571	4,930
Duluth "	1,481	3,571	5,052
Milwaukee "	1,318	3,571	4,889
Chicago "	1,384	3,571	4,955

Note.—All distances on these tables are given in statute miles.

Fort William to Liverpool via New York	4,930 miles.
" " " Georgian Bay Ship Canal	4,109 "
Difference in favour of the Georgian Bay Ship Canal Route	821 miles.
Fort William to Liverpool via River St. Lawrence Route	4,410 "
" " " Georgian Bay Ship Canal Route	4,109 "
Difference in favour of the Georgian Bay Ship Canal Route	301 miles.
Fort William to Liverpool via New York	4,930 "
" " " River St. Lawrence	4,410 "
Difference in favour of River St. Lawrence Route	520 miles.

Table of Distances of Water and Railway Routes.

CANADIAN PACIFIC RAILWAY ROUTE via GREAT LAKES, FRENCH RIVER AND MONTREAL.

—	Fort William to North Bay.	North Bay to Montreal.	Montreal to Liverpool via Belle Isle.	Total Distance.
Fort William to Liverpool	573	364	3,189	4,126
Duluth "	695	364	3,189	4,248
Milwaukee "	545	364	3,189	4,098
Chicago "	611	364	3,189	4,164

CANADA ATLANTIC RAILWAY ROUTE via GREAT LAKES, DEPOT HARBOUR AND MONTREAL.

—	Fort William to Depot Harbour.	Depot Harbour to Montreal.	Montreal to Liverpool via Belle Isle.	Total Distance.
Fort William to Liverpool	511	379	3,189	4,079
Duluth "	632	379	3,189	4,200
Milwaukee "	483	379	3,189	4,051
Chicago "	549	379	3,189	4,117

GRAND TRUNK RAILWAY ROUTE via GREAT LAKES, MIDLAND AND MONTREAL.

—	Fort William to Midland.	Midland to Montreal.	Montreal to Liverpool via Belle Isle.	Total Distance.
Fort William to Liverpool	538	382	3,189	4,109
Duluth "	660	382	3,189	4,231
Milwaukee "	509	382	3,189	4,080
Chicago "	576	382	3,189	4,147

MATTAWA, June 30, 1905.

A. ST. LAURENT, Esq., C.E.,

Engineer-in-Charge, Georgian Bay Ship Canal Survey,

Ottawa.

Dear Sir,—I beg to submit a report of the work done in the Nipissing district of the Georgian Bay Ship Canal survey to date, June 30, 1905.

This district originally covered that part of the Ottawa and Mattawa rivers that lie between the head of the Des Joachims rapids, which is some forty odd miles above Pembroke, to Lake Nipissing and subsequently it embraced that latter lake.

During the first week of October, 1904, the organization of the survey was completed and the original Nipissing district divided into three sections, the parties placed immediately at work thereon, being fully equipped by the department with all necessary instruments, stationery, &c., for the determination and record of the work and the initial necessary supplies, with blankets, camp equipment, boats, canoes, &c.

Section No. 1, embraces that part of the country lying between Lake Nipissing the head of the Des Joachims rapids, in all about 53 miles direct distance.

Section No. 2, has all locations between the Talon Chute, its vicinity, and the head of Johnson's rapids, about one mile below the town of Mattawa, in all about eighteen miles of direct distance.

Section No. 3, embraces that part of the Ottawa river from Johnson's rapids to the head of the Des Joachims rapids, in all about fifty miles direct distance.

The subsequent section which was allotted to the district and called the lake party, or section O, was given the investigation of that part of Lake Nipissing which lies between North Bay and Vases creek, on the north-east shore of the lake, across Frank's bay or the upper entrance of the French river.

After a careful investigation of all the available plans and profiles of previous surveys, it was determined to obtain topography to the highest possible contour of all flooded area that would of necessity follow the erection of dams and other regulating works. With this end in view a raised water surface profile was adopted with a summit level embracing, Trout, Turtle and Talon lakes, all to the Trout lake level, and between the lower end of the last named lake to the adopted raised level of the pool at the head of the Des Joachims rapid. The limit of the flooded contour to be carried, was adopted to embrace any probable crests that might be projected in final design for the control of the different pools.

All investigated areas were covered by accurate triangulation or closed traverse or both as a basic net upon which the topography soundings and other detailed information would subsequently be hung.

Base lines incorporated in the above at intervals of not more than 8 miles apart were carefully measured by steel tapes with spring balance and thermometers—tapes previously tested for temperatures and tension—the line levelled, reduced to the horizontal and correction for tape error applied for, &c.

Error between carried and calculated bases measured to date less than 1 in 2,600.

Meridian established by observation on Polaris or some other circumpolar star at elongation taken at similar intervals of not more than 8 miles apart, and from base-line or main transit line points.

True azimuth carried throughout the basic net for closure with adjustment of error of carried and observed azimuth, after correction for convergance of meridians, &c.

Completed main circuit closed-traverse close to within 1 in 750.

Connecting triangulation stations customary method of traverse used, starting from a triangulation station with known azimuth to another visible triangulation station meandering for positions required and the circuit closed by Stadia or chainage on next main station.

Closures of these lines by latitudes and departures with co-ordinate difference of the main stations affords the required check.

Shore line stations serve to unite topography and hydrography, while cross-river sights served to further connect the work.

Transits reading to 30 seconds with vertical arc reading to single minutes used in main traverse and triangulation.

Check levels were carefully caried early in the survey over the summit sections, sections Nos. 1 and 2 in duplicate lines from the assumed elevations of permanent benches at each end of each section and of which the precise level party, now on its way from Montreal to North Bay, will determine the true elevation.

Both these level loops checked to within ·02 V. distance in miles between B.M.'s.

The level used in the above work was a 24-inch Gurley 'Y' with 6 second vial reading target rods of the U.S. coast and geodetic pattern reading to thousandths.

The general topography, owing to the extreme roughness and underbrush of the country, was carried on by means of hand level rods and tapes with angle mirror, or box sextant, for direction, except in those cases where possible structures might be located, which were more closely cross sectioned by 'Y' level and transit.

In numerous cases where the shores are very pecipitous and confine long stretches of the river, either a limiting contour traverse line was run, or the slope, if it were a quick one, was determined roughly by estimation from shore stations.

It was found impracticable on account of the nature of the country to use the stadia for elevation topography, but was largely used in shore traverse and in mapping general locations where obstructions would not retard the method.

Particular localities where required were covered so as to enable them to be developed in 2 and 5 foot contours.

The major part of the soundings were made from the ice ; a boring machine consisting of an auger, geared to a hand wheel mounted on a sled and capable of drilling a 4-inch hole through 36 inches of ice, was used for this purpose.

The layout was defined by the depth which was being found, reference being made to the elevation of the proposed water level—these layouts were either in squares or parallelograms, and varied from 25 to 500 feet each way.

Recourse has also been had to boat soundings and the use of the sweep bar.

Information as to nature of material worked over, independent of the special party arranged for that purpose, has been carefully noted in all cases. Also the nearby location of such material as would prove valuable in construction.

Measurement of the discharge and the record of the water levels at the critical points of each section have been carefully made and will be compiled when time will permit. These were taken irrespetive of any similar work done by the hydraulic party.

Plotting the work as it progressed has been carried on not with the idea that it was final, but more to be careful that any area or location under consideration received the full investigation necessary and in proving the closures of the triangulation and traverse systems. These plans which have generally been compiled by the field staff, have been plotted to scale 400 feet 1 inch and even larger at some points.

Borings have been made, where possible, by each section with the jump bar and will continue except in those localities that are being covered by the boring party specially.

With regard to the boring party, instructions have been given to the sectional engineer in charge to prepare plans showing carefully thereon the locations and number of borings desired over any particular locality, for the use of the engineer of the boring party and his assistants.

The immediate object of the survey kept in view has been that the notes being reduced and plotted, there may then be projected upon the maps the location, for any sized canal to a depth of 24 feet draft having bottom width of 300 feet, from which profiles may be drawn and a correct estimate made of the amount and character of

material in excavation and embankment, nature of various foundations and final design of lock, dams, regulating works, power plants and other structures ; also the right of way and definition of flooded area. On locations where curvature will exist, the contours have been sufficiently established to cover any possible increase in the bottom width of prism hereafter to be established to include a curve of 6°.

Where two or three possible routes have been found by investigation, through reconnaissance and track traverse, comparative profiles have been obtained by transit and level, and their centre line section areas computed to grade for comparison. This has led to the investigation of different locations between two points and has proven valuable in eliminating routes that for the time looked promising.

Section No. 1 completed the triangulation, closed traverse and soundings between Lake Nipissing to and including that part of Talon lake known as Black bay, with the exception of some soundings at the Stepping Stones and the rapids immediately below it. Also excepting some soundings on the rapids in the Mattawa river between Turtle and Talon lakes.

The topography has been completed between Lake Nipissing and the foot of Turtle lake, together with the greater part of the Mattawa river below Turtle lake.

The remaining topography to be done on this section as originally allotted lies between Turtle lake, Pine lake and Talon lake, in all about one month's work.

Five traverses have been made from Lake Nipissing to Trout lake with levels and sufficient topography to determine the best route through that divide, two by the Chippewa, two through the Ojibawaysippe route, and one at the Vase.

The upper end of the Ojibawaysippe route used in conjunction with another investigation through Jennings' lake and coming out into Lake Nipissing at Rocky Point, proved to be so far superior to any of the others that this line was determined upon, all soundings and topography completed between Trout lake and Rocky Point, for a close estimate.

Three routes are now under investigation; from Turtle lake to Talon lake; one by way of the Mattawa river, one from Turtle into Pine lake crossing into Black bay of Talon lake and one from Turtle into Pine lake and continuing from the western end of the latter to an arm of the south shore of Talon lake, known as Spottswood bay, and as above stated, will be completed in about a month's time. A route has been under investigation by track traverse from Turtle lake into the Kai-Bus-Kong through Price, Cross and Frog lakes and two pools above the lower rapids of the Kai-Bus-Kong. The lake party will be placed here on completion of the work they now have in hand, that of determining the 5 and 10 foot contours above high water Lake Nipissing, between the town of North Bay and Rivière de Vase.

A suggested route from Lake Nipissing to Lake Nosbonsing and down the Kai-Bus-Kong is out of the question for the reason that Lake Nosbonsing has an elevation of 137 feet above Lake Nipissing, whereas Trout lake has a summit that has an elevation of but 22 feet over Lake Nipissing. Section No. 1 has moved to the Talon lake level and together with the lake party will proceed to complete all surveys above the Talon chute, in addition to their original allotment. It is estimated that this will be accomplished by the last week in August.

This latter work will also include a survey of the Kai-Bus-Kong to above the dam and to the south of the railway at the eastern part of Lake Nipissing.

The above finished work includes about forty-four miles of closed traverses. This is exclusive of traverse for shore delineation, islands, &c.; over sixteen lineal miles of direct triangulation varying in width from one and a half miles to a few hundred feet; about thirty-four miles of direct levelling which includes loops and twenty-four miles of broken water transfer and about 5.25 square miles in area covered by soundings.

Gauges have been established at North Bay, both ends of Trout lake, Turtle lake and both ends of Talon lake, their zeros referred to permanent B. Ms., their record continually kept, and all connected to the level net of the section.

For the work above Talon chute a launch has been supplied to this party to facilitate the work.

Section No. 2 completed the triangulation and closed traverses between the Johnsons's rapids on the Ottawa river and the foot of Talon lake along the Mattawa river. Also the Amable du Fond in closed traverse to Eau Claire.

Four closed traverses have also been made upon which to base the topography laying directly between Sand bay on Talon lake, and that part of the Mattawa river immediately below the Paresseux falls. Soundings have been completed from Johnson's rapids on the Ottawa river to the Paresseux falls on the Mattawa river, with the exception of about two days work in the vicinity of the town of Mattawa.

All topography has been completed between the two points, except the Sand bay Paresseux line and the possible flooded contours followed up the Amable du Fond and vicinity.

Benches at the head and foot of each break in the natural profile were early established, and their height above the W. S. noted; and soundings reduced therefrom. These benches were subsequently embraced in the level net.

There are three possible routes between the Talon lake level and Lake Champlein. One from Sand bay to the Paresseux falls, one following the natural line of the Mattawa river, and the third passing by Talon chute to the lower end of the Pimisi lake, thence across to Johnson's lake, Smith's lake, Crook's lake, Moore lake, two ponds, and running into the Champlein lake through a blind arm located at its western end.

A careful reconaissance of that part between Sand bay and Paresseux falls has proved that a location may be found through there with a curvature of not more than 2°, and this location is now being close contoured. The topography of the all river route will not be undertaken between Pimisi lake and Paresseux falls, except for the determination of raised water level contour; until after the finished investigation of the first and last route; for the reason that the latter two are much straighter and shorter, while the river route contains two changes of direction of 90°, each within a short distance, and which occur in close proximity to possible lock structures on such a route.

Several reconnaissances and track surveys have been made on the line from Pimisi lake through Johnson and Smith lakes, to Champlein lake ; these show that the line may be carried here at the expense of very little excavation, the level maintained principally by banks; thus getting rid of the extremely heavy rock work necessary between Sand bay and the foot of the Epines rapid along the first route. This would necessitate a diversion of the main line of the Canadian Pacific Railway, in order to prevent two crossings, and which the reconnaissance shows can be accomplished by an easier grade and straighter alignment than now exists.

This route will be thoroughly investigated.

The above finished work includes about 33 miles of closed traverse, 9 miles of direct triangulation. Over 45 miles of looped and 11 miles of direct levelling; about 15 lineal miles of river covered by close soundings. Not even a reasonable approximation can be made at present of area covered by triangulation or soundings.

It is estimated that it will take this party until some time in December next to cover the remaining work to be done on this section. The country immediately to the east of the lower end of Talon lake is exceptionally rough and very thickly wooded; in consequence of which the topography necessary for the estimate can only be obtained very slowly.

On section No. 3 the triangulation, closed traverse, soundings and topography have been completed from Mattawa to nearly the foot of Deux Rivières rapid and close closed levels between Mattawa and the Rocher Capitaine.

Advantage has been taken along this route of the Canadian Pacific Railway line of levels and offset lines have been run from the Canadian Pacific Railway benches to permanent benches established along the line of the river ; the Canadian Pacific Railway benches will be covered by the Precise Party now in the field between Montreal and North Bay.

Reconnaissance of the different rapid currents, of the Klock, Deux Rivières, and Rocher Capitaine rapids have sufficed to show that one continuous location can be made, and topography confined to that line.

Water level gauges have been established along the whole section and their records are still being maintained. One gauging of the discharge was carefully made during high water by the hydraulic party with the assistance of section No. 3 and at a point lying between Klock and Deux Rivières.

In all, the above includes about 54 miles of closed traverse, and 54 miles of direct levels. About 70 miles of offset levels from C.P.R. B. Ms. to water to establish datum water levels for soundings, &c. Area includes about 12 square miles under triangulation, and the same covered by soundings. A launch has been allotted this party in order to facilitate the work; and it is expected that this section will be completed early in December.

During December, 1904, this district was directed to obtain all soundings between the north-east shore of Lake Nipissing contained in that part from the town of North Bay to East bay and Frank's bay at the entrance of the French river. This was in order to connect with the surveys made in 1901 under the direction of the late Mr. J. W. Fraser. For this purpose a separate party was organized, and in order to carry out the work; four houses, 8 feet by 20 feet, were built and placed on runners for their accommodation.

A base line seven miles long was run from a permanent point on the shore west of North Bay to another permanent point below the Vase river near East bay, the shore traversed and connection made with the permanent points of section No. 1. This line is also proposed to be used later in triangulating the lake prior to an investigation of the elevations of its shore contour. Work was begun early in January and the soundings completed before the ice made it unsafe for this work.

Two routes were investigated ; one to the north and one to the south of the Manitou islands. Each one of these bands of soundings varied between 4,000 and 5,000 feet in width. The bottom of the lake drops very gradually from the North Bay shore, and necessitated the soundings in that vicinity to be taken very closely.

Once deep water was established, it continued to the mouth of the French river with the exception of different shallow soundings, which when encountered were closely investigated.

On the completion of this work this party was detailed to establish the 5 foot and 10 foot contours above the high water plane of Lake Nipissing, from west of the town of North Bay to Rivière de Vase. And they are now engaged on this work.

Upon its completion they will be placed as above stated, on the inspection of the route between the Kai-Bus-Kong and Turtle lake, on section No. 1.

Gauges have been established at North Bay and across the lake and at Frank's bay and to which the soundings of the lake party are referred. Water level transfer between these gauges has established the elevation of the Frank's bay B.M. to the adopted datum of section No. 1.

This section completed about thirty-six miles in area of soundings, about forty-two miles of traverse, and to date about twelve miles of completed contour.

In view of the work now being done by the Precise Level party in carrying a line from the established Rouses' Point and Coteau Landing, B.Ms. through to North Bay along the line of the Canadian Pacific Railway system, to the datum of mean sea level, at Governor's island, New York (to which all hydrography on the upper lakes charts are reduced) automatic gauges have been placed at Toronto, Collingwood and foot of the French river, and their zeros connected to permanent B.Ms. in their immediate vicinity.

The elevation of the zeros of these gauges when established through water level transfer from similar United States gauges, will prove as a check to the work now being done by the Precise Level party. To accomplish this, however, it will be necessary to carry a line of levels down the French river, make the water level transfer

from French river to Collingwood, and have a precise line of levels run from Collingwood to the department's bench at Toronto.

The expense incurred by the maintenance of the Nipissing district, exclusive of the original field equipment, original supplies and instruments furnished by the department, &c., and the expense of the district engineer's office, amounts to $57,342.

This includes articles of food, general camp equipment, instruments, furniture, fuel, light, rent, salaries, travelling expenses, horses, miscellaneous.

While at the present stage of the work and the uncompleted details of the plotting, it is impossible to give the cost of survey per square mile.

To those, however, who are acquainted with the localities in question, either by observation, or a study of existing maps, it may be stated that the cost per lineal mile of completed survey amounts to approximately $630 ; it must be remembered, however, that this includes a distance on each side of centre line of route varying from 300 feet to several thousand feet.

After careful investigation it has been found that the cost of sustenance of the field parties of the Nipissing district has averaged about $14 per man per month.

The value of the work done, or the personnel of the different staffs must not be judged from the above estimate of distance and area covered by the different sections, as the physicial conditions of allotted country have not been the same in all cases.

Inspections have been made during the progress of the work which was found at all times to be carried along with much vigour and interest.

It is gratifying to state here that it gives me much pleasure to thank the different sectional engineers, and their immediate staffs, for their patience, energy, and hearty co-operation, in endeavouring to make the survey the success that is so much desired.

I have the honour to remain, sir,

Your respectfully obedient servant,

(Sgd.) S. J. CHAPLEAU, M.Am. Soc. C.E.

Engineer, Nipissing District.

P.S.—Diagram plans of each section attached. (Sdg.) S. J. Chapleau.

DEPARTMENT OF PUBLIC WORKS OF CANADA,
GEORGIAN BAY SHIP CANAL SURVEY,
OTTAWA, July 29, 1905.

SIR,—I have the honour to submit the following report of the survey of sections 4, 5 and 6, forming the Ottawa district of the Georgian bay ship canal, of which I have charge, dating from the commencement of this work on September 27 to June 30 last.

Section 4 extends from a point about two miles above the head of the Portage at the Des Joachims rapids, on the Ottawa river, eastward to Fort Coulonge, including the channels north and south of Allumette island, comprising 86 miles of river channel.

Of this, 44 miles have been surveyed in eleven circuits by triangulation and shore traverse, over which the levels and soundings were taken, each circuit closing and checking on itself; on five of these circuits no triangulation was made and some work remains to be done at Des Joachims rapids on the first circuit, which had been discontinued in order to avail ourselves of the winter season to carry the survey over the ice farther down stream.

The first of these circuits covers from west end of section to the foot of Des Joachims rapids, including the river valley and McConnell lake valley, which is supposed

to have been at one time the old river bed—the latter has a length of about 4½ miles. Of this, the lake occupies 2 miles of deep water and an average width of 1,000 feet. The valley from upper end of lake westwards to river is 5,200 feet in length, 5 feet above the river, with the lake 14 feet below river at head and 15 feet fall from lake, 3,000 feet to Colton's bay on river at foot of rapids. In Mr. Shanley's report this valley has been favourably mentioned as a possible route for the canal, the location being good as to direction and curvature, but the excavation would amount to about 700,000 cubic yards per 100 foot width with two locks, one above and the other below lake, how much of this excavation would be rock remains to be seen from test borings that are now being made there.

The route by the river would no doubt require less excavation, but the curvature is bad owing to two abrupt bends in the river.

From the rapids down, a distance of 28 miles is a magnificent stretch of river commonly known as Deep river, with a good wide channel over 40 feet deep in a direct course, except the last circuit where the river turns abruptly to the south ; for the next two circuits the river widens into what is known as Upper Allumette lake containing numerous shoals and over 200 islands, with a tortuous channel to the lower narrows. The survey has now reached this point about five miles above Pembroke on the south or Allumette lake channel.

Allumette island, dividing the river here into two channels, is 14 miles long and has an average width of five miles—the north or Calumet channel although some ten miles the shorter, is rather narrow in places and contains less than one fourth the flow or discharge of the south or Allumette lake channel.

The amount of work done on this section to June 30, is as follows:—

28 miles of river triangulated with 137 stations.
117 miles of transit and chain shore traverse.
101 miles of levels taken.
65 miles of contours.
20 miles of stadia.
62 islands surveyed.
32,637 soundings taken and recorded.
32 miles of river plotted from field notes.
6 astronomical observations taken.
8 gauges set and daily record kept.

There remain to be surveyed on this section 42 miles of river channel taking in both sides of Allumette island, which the sectional engineer estimates will take six months to complete, including one month for Des Joachims rapids.

Section 5 extends from old Fort Colonge along the north or Calumet channel eastwards to a point on Chats lake about two miles above the Chats rapids, a total distance of about 56 miles.

A triangulation and shore traverse has been carried down stream to the Sables within 5 miles of Portage du Fort, over which the levels have also been taken and soundings completed from Lapasse to the Mountain chute.

From Portage du Fort to the foot of the Chenaux rapids, including the different channels at the latter place, a transit and chain traverse survey was carried over the ice with levels and soundings: from the Chenaux rapids to the east end of section above the Chats rapids a transit and chain traverse was carried down on the Ontario shore with levels. Triangulation stations on both shores were connected with this traverse from Portage to east end of section, but the angular measurements remain to be taken.

From Fort Coulonge above the mouth of the Coulonge river to Lapasse near the head of Calumet island a distance of about five miles, the river or Coulonge lake is divided into numerous channels by about eighteen islands. This part is now being surveyed.

From the head of Calumet island to the Calumet falls on the northern or Calumet channel, a distance of seventeen miles, the river is navigable, having an average width of 600 feet and a channel of from seven to twenty-five feet in depth, the shallows being of silt and sand that can be easily dredged.

The Rocher Fendu or south channel of Calumet island is navigable from the head of the island for about four miles, after which for eight miles the river is broken for half that distance into falls, rapids and a great number of islands, then to lower end of island is the Rocher Fendu lake four miles long, half a mile wide and twenty-five feet in depth. The total length of this channel is sixteen miles or six miles shorter than the north or Calumet channel.

On the Calumet channel, four miles from the head, the river makes a sharp bend around a point of the island where a marshy bay called the Grand Marais extends for about a mile in the direction of Coulonge village, situated on a narrow neck of land between the Coulonge and Ottawa rivers; from the Grand Marais a canal can be cut through low ground north of the village to the Ottawa river between old Fort Coulonge and the mouth of the Coulonge river, for a distance of about three miles, making a direct route of about four miles in length, whereas by the river, the distance is about nine miles and tortuous. Last winter a survey was made of this route from Grand Marais to Coulonge village, this survey is now being extended to near the old Fort and test borings will be made, but no rock is likely to be met with.

At Calumet falls a survey was made of the timber slide channel and another of a gully or ravine on Calumet island for about a mile in length past these falls ; the location of the latter is favourable as regards direction and curvature but would require an excavation of about 900,000 cubic yards per 100 foot width, mostly rock.

From the head of Calumet falls to Portage du Fort the river falls 109 feet in eleven miles, distributed as follows: Calumet falls and rapids, 60 feet, Létargie rapids, 6 feet; Mountain chute, 14 feet; Sable rapid, 4 feet. On this portion of river from the head of Calumet falls to the foot of Calumet island there are 18 islands; below this to Portage du Fort the fall is 16 feet in four and a half miles with over eighty islands, some of the largest being over 100 acres in extent.

This is no doubt the most difficult portion on the Ottawa river., and has already in the past given rise to differences of opinion. Mr. W. Shanly in 1857 choosing the Calumet channel as the best route and Mr. T. C. Clarke in 1860 favouring the Rocher Fendu channel.

As the instructions did not call for a survey of the latter, no work has been done there, but it might prove the better route for a 22 foot navigation, owing to the narrow channel by the Calumet and the continual dredging that will be required there on account of the deposits of sand carried down annually from the upper and northern end of Calumet island by the spring freshets.

From Portage du Fort to the Chenaux rapids there is a navigable stretch of six miles of over 25 feet in depth with a couple of shoal places of 9 feet depth. The fall at the Chenaux rapids in low water is less than a foot and steamers pass it without difficulty but in high water the fall is between three and four feet, the greater flow being restricted by the reef and a group of islands ; by enlarging the channels between the islands with a dam at the Chats the obstruction here can be overcome.

Below the Chenaux rapids the river expands into Chats lake proper for eighteen miles in length and one to two miles wide, with a wide deep channel—the soundings of this lake still remain to be taken.

The amount of work done on this section to June 30 is as follows :—

Twenty-two miles of river triangulated with 180 stations.

Seventy-seven miles of transit and chain traverse.

Sixty-eight miles of levels taken.

Twenty-five miles of contours measured.

Twenty-three thousand nine hundred and sixty soundings taken and reported.

Twenty-one miles of river plotted from field notes.

Four astronomical observations taken.

Five gauges set and daily record kept.

As the horses and equipment were sold on the other sections, I have deducted the amount that would be realized from the sale of same on this section.

On this section there remain to survey five miles of river between Napanee and Fort Coulonge, with shore traverse, levels, contours and soundings including a group of about thirteen islands; then the survey of the river from Mountain chute to Portage du Fort about six miles, shore traverse, levels, contours and soundings, including about eighty-eight islands; a shore traverse from Portage du Fort to the Chenaux, this part has already been sounded and levels taken; a traverse of the Quebec shore from the Chenaux to east end of section near the Chats and the river channel sounded over the same stretch.

This ought to be completed in six months. Should a survey of the Rocher Fendu channel be made it would occupy another three months.

Section 6. Extends from about two miles above the head of the Chats eastwards to the mouth of the Gatineau river, a distance of forty-two miles.

The Chats rapids and falls, with a descent of fifty feet in four miles and over 300 islands render this one of the most difficult portions of the river with which we have to deal. The survey of this part is now being completed and three routes will be located, one on either side and another by the main river channel.

Below the Chats for thirty miles stretches Lake Deschenes with an average width of one and a half miles and a channel from 19 to 25 feet deep. From Lake Deschenes there are five miles to the foot of the Chaudiere, in which the fall is 60 feet divided as follows : Deschenes rapids, 9 feet; Remix rapids, 3 feet; Chaudiere rapids, 8 feet, and Chaudiere falls, 40 feet.

Of the several routes that have been projected, that along the Ontario shore and the square timber slide channel appears to be the most suitable, but this spring a survey was made of an entirely new location, to the rear of Hull city, from the head of the Remix to the outlet of Brewery creek near the mouth of the Gatineau; the distance is about three miles and would require an excavation of two million cubic yards per 100-foot width; Deschenes lake level could be carried through by this route with an additional length of two miles and excavation of one quarter million cubic yards per 100-foot width. Although the excavation on this new route would be costly, it has an advantage as to distance and curvature, avoiding any interference with existing water powers, some of which have been developed at considerable cost.

The survey of this section was started at the Chats and carried down stream to the east end of section by a complete triangulation, a shore traverse throughout of the Quebec side and on the Ontario shore, twelve miles at the west end and seven miles at the east end, levels have been taken over the entire distance, also soundings from the Chats to one and a half miles below Deschenes lake and from the Alexandra bridge to the Gatineau.

The amount of work done on this section to June 30 is as follows:—

41 miles of river triangulation.
1,649 milengulation angles taken.
101 miles of transit and chain traverse.
103 miles of levels taken.
17 miles of contours.
105 islands at Chats by stadia.
38.5 miles of river sounded.
48,092 soundings taken and recorded.
41 miles of river plotted from field notes.
Plan and profile of location from Remix to Brewery creek outlet.
2 astronomical observations taken.
9 gauges set and daily record kept.

There remains to be completed on this section about one half the survey of the Chats, the lower two miles of Chats lake, from west end of section to head of rapids, 24 miles of shore traverse on the Ontario side of Lake Deschênes, shore contours throughout, also the soundings from Remix to Alexandria bridge and for two miles on Chats lake.

The completion of this, the engineer in charge of section estimates, will take about four months.

The past winter with its extreme conditions of severe frost and heavy snow fall, retarded the survey very materially.

The early thaws in March, this year, with colder weather in April, resulted in the spring flood being less high than usual.

In former years the Ottawa river was subject to two distinct floods each spring, the local flood and the north water flood; an occasional year the latter caught the former causing the river to break its bounds in some places, the most remarkable instance of this was in 1876, such years generally resulted in extreme low water in the autumn. Of late years the north water flood has not been so marked, in fact, it is hardly noticeable, owing no doubt to the lumbering operations having been extended farther north, with the construction of dams holding the upper waters in reserve.

By measurements of Mr. Alex. McDougall, hydraulic engineer on this survey, the discharge of the Calumet channel on May 12 was 2,673 cubic feet per second, and of the main river at Lapasse on May 15, 60,600 cubic feet per second, also of the latter at same place on June 28, 43,957 cubic feet per second.

From the east end of this district upwards the drainage area of the Ottawa river is approximately, including the Gatineau, 47,000 square miles, divided as follows :—

QUEBEC SIDE.	Square miles.	ONTARIO SIDE.	Square miles.
Gatineau	9,600	Rideau, Mississipi, Madawaska, Bonnechère, Indian, Petewawa, Chalk	11,000
Quio, Black, Coulonge, Schwyan	4,700		
Dumoine	1,700		
Magnasippi, Antoine, Snake, Beauchêne	800	Above des Joachims to and including the Mattawa	1,300
Kepewa	2,200	Above Mattawa to height of land and interprovincial boundary	6,000
Upper Ottawa north of Keepawa to heigth of land and west to inter provincial boundary	9,700	Total	18,300
Total	28,700		

Quebec side.. .. .. 28,700 square miles.
Ontario side.. .. .. 18,300 " "

Grand total.. .. .. 47,000 " "

The above shows the greater drainage area on the Quebec side, where the precipitation is also greater in proportion.

About the latter end of September would be the proper time to measure the minimum discharge for navigation.

The latter measured, some years ago, amounted to 25,000 cubic feet per second near the middle of the district, and after allowing for lockage and overflow at dams, over 300,000 horse power could be developed in this district.

Respectfully submitted,

I have the honour to be, sir,

(Sgd.) E. J. RAINBOTH,

District Engineer.

A. St. Laurent, Esq., C.E.,
Engineer in Charge,
Georgian Bay Ship Canal Survey,
Ottawa, Ont.

July 12, 1905.

A. St. Laurent, Esq., C.E.,
Engineer in Charge,
Ottawa.

Sir,—I have the honour to report regarding the progress of the work on the Montreal district as follows:—

SECTION NO. 7.

This section extends down the river from Gatineau Point. It is practically all one level above sea for fifty-six miles to Grenville, and its surface might be maintained at el. 135 above sea without great injury.

Between Rockliffe and Gatineau Point the river is only 800 feet wide, but the depth is over 60 feet. The Gatineau flows in just above this contraction, and in conjunction with the rapid flow at Chaudiere Falls two and a half miles above has raised the surface as high as el. 152. The lowest recorded elevation has been el. 128. Were the river drained down to the bottom level for the proposed navigation there would still be a succession of long lakes. For the most part the improvement will consist in dredging channels only from 2 feet to 10 feet in depth between these submerged lakes.

The survey work on this section has now reached L'Orignal, fifty odd miles below Ottawa.

Mr. Perreault reports under date July 5, in substance as follows :—

The traverse along the north shore extends from the Gatineau bridge, fifty-four miles down to Calumet. Secondary base lines have been run on the south shore mile 0 to mile 2 and also between mile 50 and 54. The balance of the south shore has been established by triangulation.

Levels have been run down the north shore to Calumet and checked into Challoner's line at Caledonia Springs. Contours have been taken all along the shores and water gauges were placed last spring at various wharfs and readings are being kept.

Soundings 100 feet apart on lines spaced 250 feet in length of river were taken through the ice for forty-six miles down from Gatineau Point during the winter and after the break up of the ice and high water this work was resumed June 13 and has since been extended to mile 52. In all 25,000 soundings have been taken.

Office work has consisted in reducing field notes and plotting. The plans will contain about 26 miles of river on each sheet.

This section No. 7 continues from Grenville to Carillon but so far it has not been covered by survey. Grenville to Greece Point, nearly six miles, is a continuous

rapid, the Long Sault. Greece Point to Carillon, six miles, is a level formed by the Carillon dam which drowned out the Chute à Blondeau rapid. This reach might possibly be maintained at el. 105 above sea.

To complete section No. 7 requires five miles of river sounding above Grenville and five miles more between Greece Point and Carillon, besides which 6 miles in the Long Sault rapid would have to be examined for depth. Soundings through the rapid cannot well be taken in regular cross-sections, but if is expected the general depth can be got with fair accuracy. In all, then, 16 miles of river have yet to be surveyed and sounded.

SECTION NO. 8.

This section extends from Carillon down to the foot of Lake of Two Mountains where it empties out by four channels, two back of Montreal, and by the Vaudreuil and by St. Anne rapids into lake St. Louis.

Mr. McNaughten reports under date June 29 in substance as follows:

Section 8 from Carillon to St. Anne is twenty-six miles long, but an alternative route north of Isle Bizard makes ten miles additional work. The north and south shores of the river were covered by survey till December 12 when all work was concentrated on sounding through the ice, which continued to March 18, when St. Anne was reached.

From Carillon to Rigaud Bay, five miles, the river is one-half mile wide and the soundings extend from shore to shore. From north of Jones Island to St. Anne a width of 1,500 feet was sounded, and an alternative line of the same width was examined south of Jones Island. In all 32,280 soundings were taken in 75 days, average 430 per day.

In April and May, the shore survey was resumed and completed to St. Anne. The numerous islands between Vaudreuil and St. Anne being located by triangulation. In all sixty-five miles of shore were covered, thirty-seven on south side, to St. Anne, and twenty-eight on north side to Oka.

Bench marks have been established on both shores and the levels thoroughly checked. High water (80.5) has been traced on both shores and simultaneous gauge readings taken June 8 at Carillon gave 73.95; Hudson 73.65; St. Anne 73.50, showing 0.45 feet fall in river surface, distance twenty-six miles.

If water surface Carillon to St. Anne were kept el. 75 no levees whatever would be required, whereas el. 81 would inundate Vaudreuil, Oka and other places.

Pit sand is found at Hudson and Oka and is also pumped from the bed of the river and near St. Joseph du Lac. The shores of Lake of Two Mountains are lined with boulders which protect them against the frequently recurring storm waves, along this stretch.

Office work has consisted in reducing notes and a large plan is well under way, in fact completed with soundings and levels shown from Carillon to Pointe aux Anglais.

There still remains to be done on section 8, ten miles of sounding from Oka toward St. Eustache, and about twenty miles of shore traverse. The North river will be examined up to the town of St. Andrews, where there is a water power dam.

Considering for the time being that water surface, Carillon to St. Anne, can be held el. 75, the chief engineering question is the regulation of that level by dams and sluices at St. Anne, Vaudreuil, and the head of the two back channels.

SECTION NO. 9.

This section embraces surveys along the south or Lake St. Louis side of Montreal Island, and also along the north or Back river side. Along the south side it is fifteen miles to Lachine, and ten miles thence to Victoria Bridge, Montreal.

The Back river survey will extend from St. Anne to Isle Bizard and down to Bout de l'Isle. All the St. Lawrence side has been surveyed down to Montreal, including a traverse and cross-sections along the Lachine Canal. Mr. Voligny's report under date June 19 is in substance as follows :

Lake St. Louis, north shore Isle Perrot and islands from St. Anne to Lachine traversed, levelled, and contoured. Belt 2,000 feet wide sounded from St. Anne to Dorval in lines 100 feet along stream and 50 feet intervals across.

North shore of St. Lawrence river traversed, levelled and contoured from Lachine to Victoria bridge, including Nuns island and Ile Heron at Verdun. Soundings from Verdun to Victoria bridge 200 feet along stream and 100 feet apart over whole north half of the river.

Lachine canal traversed and cross-sectioned every 400 feet from Lachine to St. Paul, and thence down to St. Lawrence river at Verdun.

The shore of Lake of Two Mountains traversed and contoured from St. Anne to Ile Bizard, and thence down Rivière des Prairies to Cartierville. Soundings have been taken from head of Ile Bizard ten miles down Rivière des Prairies.

During the winter 28,595 soundings were taken and since spring about 7,000 more, in all over 35,000. The traverse lines run amount, in all, to 130 miles on this section, and some 46 miles of levelling has been done. A system of triangulation has been made tieing in all the work on Lake St. Louis.

The system of work has been to examine about five miles of river, establish camp and place a traverse party on each shore, meanwhile levels are carried along and benches set from which the contours are made. Gauges are put in, and after the circuits are closed and plotted, ranges are established and the soundings taken.

Any south side route means crossing the Canadian Pacific and Grand Trunk railway lines at St. Anne's and at the Caughnawaga and Victoria bridges, both of which carry a heavy and increasing traffic.

Another method of passing from Lachine to Montreal would be by a dam and lock in the Lachine rapids at Heron island.

This would be a bold undertaking, but the proposition was spoken of in 1893. Such a scheme would secure broad river navigation direct into Montreal harbour instead of through eight or ten miles of restricted channel with several locks. It would also afford a splendid water power within five miles of Montreal and the floods from which that city now suffers would be practically done away with. The harbour level would be lowered and other disadvantages might be cited, but for all time a system of improvement would be indicated to which our national port might with dignity aspire.

The Back river is being examined. The survey is not sufficiently advanced to make definite statements. One great advantage of this route would be that a large area of land could be secured, for terminal facilities which are so essential to this transportation scheme.

I have the honour to be, sir,

Yours sincerely,

(Sgd.) C. R. COUTLEE,

District Engineer.

APPENDIX G.

WATER SUPPLY, FLOW MEASUREMENTS, &c.

OTTAWA, June 30, 1905.

A. ST. LAURENT, Esq.,
Engineer in charge,
Georgian Bay Ship Canal Survey.

SIR,—In your letter of January 3 last, you informed me that the Minister had been pleased to approve of my appointment as special hydraulic engineer to investigate and report upon all hydraulic questions relative to the proposed Georgian Bay ship canal, and that it would be my duty:

To collect all available data with regard to the present condition of the established water power plants, as well as other unused powers on the canal route; to study the regime of the rivers to be canalized and collect the necessary information to strike out the curves of low and high water; to study the probable effect on low stage of the Ottawa river; of impounding surplus waters in the spring in the upper reaches of the river; to make a complete study and report with regard to the water supply for canal purposes at the height of land between Lake Nipissing and the head of the Mattawa river; and to ascertain whether enough water can be assured for lockages through navigation season for the passage of 10,000,000 tons to 20,000,000 tons freight—all available sources of water supply being investigated in carrying out these instructions.

To carry out the above instructions it was found necessary to divide the work into two general divisions—one comprising the water supply for canal purposes at the height of land and vicinity, the other the general study of the Ottawa river and its tributaries.

The first part of January was spent in organizing and furnishing the office and preparing a system for carrying out your instructions, and in gathering information which would show the amount of work already accomplished along this line and how much yet remained to be done. Considerable of this information was collected from the Crown Lands Department in Toronto and Quebec, from the Department of Marine and Fisheries and the Geological Survey, from the Geological Survey of the United States, from Mr. Stupart, director of the meteorological observatory in Toronto, from Mr. White, Geographer of the Department of the Interior, and from different power owners and individuals in and around Ottawa. A tabulated list of this information is given in appendix No. 1.

Mr. S. B. Johnson, of North Bay, was appointed draughtsman, and on January 24 he commenced drafting and compiling statistics.

Division 1.—Summit Supply.—The quantity of water required for summit purposes of a canal will vary according to the amount of traffic and the size of the vessels used, but can be estimated under six headings, as follows :—

1. Filling the locks.
2. Leakage of gates.
3. Evaporation and seepage.
4. Leakage over the waste-ways.
5. Power to operate gates.
6. Power for electric lights.

Before commencing the work at the summit, an approximation of the sum required for this purpose was made. For preliminary purposes the locks were assumed to be 650 feet long, 70 feet wide and 23 feet of a lift. The traffic was assumed to be 10,000,000 tons moving east, and an average vessel assumed to carry 5,000 tons. In 200 navigable days we have, therefore 10,000,000 tons, or in one day we have 50,000 tons, which shows that ten full vessels carrying 5,000 tons are going east. This would require twenty lockages at the summit. The same number of vessels would be going west, which would make thirty lockfuls per day that the summit would have to supply, assuming that one-half of the vessels going west were accommodated by the waters of the vessels going east.

Assuming a lock 650 by 70 by 23 feet would give 363 (or say 375) cubic feet per second as the amount required for lockage.

For 20,000,000 tons this would be double, or 750 cubic feet.

For 30,000,000 tons this would be treble, or 1,125 cubic feet.

Leakage in gates is for present purposes assumed as fifty cubic feet per second.

Evaporation and seepage.—Evaporation from the water surface would be increased by the enlargement of the lakes, but until some definite plan is formed it is difficult to make any rational assumption. Assuming, however, the lake surface to be increased by ten square miles and to have a monthly evaporation of three inches, this would be from 15 to 30 cubic feet per second. If 30 cubic feet be assumed, it is expected this would allow for seepage.

Leakage over the waste-ways, is assumed to be 20 cubic feet per second.

Power required to operate the gates and light the canal is assumed to be 110 cubic feet per second. In case of deficiency of water supply this can probably be obtained more economically from some outside source, the energy being transmitted electrically.

The report of the Isthmian Canal Commission, 1899, assumed 200 cubic feet per second for power and other contingencies. The Deep Waterways Commission of the United States, in estimating the summit level water supply, assumed that the proper allowance for this purpose would be 40 to 50 cubic feet per second. An approximation, therefore, of the total amount required at the summit is about 375 cubic feet per second for 10,000,000 tons.

Trout lake is the highest body of water on the proposed canal route. It is about 23 feet above the level of Lake Nipissing and 30 feet above the level of Lake Talon. It has a drainage area of 72 square miles and is apparently inadequate to supply the demands of the canal. The investigations have been carried on with a view of raising Lake Talon to the level of Trout lake and using as a summit supply all the watershed which now drains through Talon chute. This drainage area is about 350 square miles.

Under natural conditions, without any storage, the run-off at low water would be insufficient for the purposes, and it was found necessary to investigate the conditions closely and determine the quantity of water flowing into Lake Talon from different sources with a view of storing the excess water of these feeders at times of high water to be utilized to supply the deficiency at low water. The two principal feeders are the Kai-bus-kaw river flowing from Lake Nasbonsing and the North river, the latter having no large lakes on its course.

The study of the run-off in the watershed is rather involved as the lumberman have built storage dams on most of the lakes, the water of which they use in the spring and during the summer to drive logs. These dams are opened and closed many times during the season and require close watching in order to find out the total run-off from any particular part of the watershed.

After the study of and trip through the lakes, gauges were placed in Turtle lake (which is practically a continuation of Trout lake), Trout lake, Lake Talon and Nasbonsing lake (the principal feeder of Lake Talon as already mentioned). As these gauges were directly affected by the conditions of the dams, other gauges were

placed—one in the Mattawa river below Trout lake, one at Kai-bus-kaw below Nasbonsing lake and one on the Mattawa river below Talon chute where the gauge heights were proportional to the quantity of water flowing and from which with daily readings and our measurements of flood, curves of the discharge and the quan- daily readings and our measurements of flow, curves of the discharge and the quantity of wa er flowing from the watershed could be determined. Mr. A. J. McDougal, section C, had gauges at North Bay, Lake Nipissing and at the head of Trout lake.

To find out the minimum amount of water flowing from the watershed, measurements were taken during February and March. Some difficulty was experienced in finding suitable sections for measurements. On the Kai-bus-kaw, Menard's bridge formed a very convenient position for metering. About a mile below Turtle lake, at the outlet of White Fish pond, a very good section for the work was found, but at this section it was necessary for the observer to wade.

The river below Talon Chute is a series of very deep ponds or small lakes in which there is a very small current. These lakes are separated by rapids where the water is so agitated that proper metering cannot be taken. Finally after several of these places were tried a section was found on Talon Lake Narrows, but it was necessary to relate the measurements of gauge heights taken at a gauge about a mile below Talon Chute. After these measurements were taken M. MacLennan, who was appointed assistant engineer on March 16, continued the measurements. He has continued these gaugings at high water and at other times since in order to get a history of the water flow.

The run-off of any watershed being the rainfall minus the evaporation, in order to make a more systematic study of the water supply, arrangements were made to measure both of these to compare with previous years. Mr. Stupart, the director of Meteorological Observatory in Toronto, has had rainfall observations taken at Lake Talon, North Bay, Mattawa and other places for a number of years, and very kindly loaned us a dozen rain gauges to supplement these. A half-dozen of these were placed in the watershed of the summit—one at Menard's bridge, one at Nasbonsing, one at Turtle lake, one at White Fish pond, one at Pimisi bay and one at Lake Talon, and arrangements were made with the water gauge reader to read the rain gauge at the same time. These rain gauges have been read from April 20 last.

As the watershed will be considerably altered if the canal is built—that is the water surface, owing to the storage reservoirs, will be much greater and, therefore the evaporation will be increased—two tanks were built to measure the evaporation from the water surface. These were of galvanized iron, 4 feet square and 18 inches deep, and were intended to be floated in the lake itself—one at Lake Talon where one reservoir was to be and one at Lake Nasbonsing. Some difficulty was experienced in floating these owing to the waves breaking in at the corners, and finally the tanks were buried in the sand, at the side of the lake and the sand around them kept moist. Observations are made by the gauge readers twice daily as regards the temperature of the air, temperature of the water in the tank, temperature of the water in the lake, humidity of the atmosphere, pressure of the atmosphere and the general condition of weather, wind, &c.

From five to six months in the year the above conditions are interrupted, that is from December to the end of March or middle of April, when the moisture falls in the form of snow and does not melt until spring except in exceptional seasons. The greater percentage of this snow is probably evaporated, especially during the month of March, by the winds, but to rightly solve the problem of the run-off of any particular watershed in the north it is necessary to know how much water is received by the ground when the snow melts in the spring and how much of the snowfall has been evaporated. The measurement of evaporation from the snow surface is not as simple a matter as measuring the same from a water surface. It will compress and is liable to drift from any vessel in which it may be held. Professor Day, associate professor of Physics in the Ontario Agricultural College, has kindly consented to co-oper-

ate with us in devising a method of determining the exact amount of moisture in our northern snow and the amount of evaporation from it, and in determining some formula by which we can predict the amount of evaporation during a certain season if we know the exact weather conditions.

It is not expected that any observations carried on for one year only are convincing, but it is hoped that a relationship will be found between these observations and the observations kept for a number of years at Toronto by Professor Stupart and that with this relationship a fair approximation can be formed of what it will be under the worst conditions—that is what the run-off will be with greatest evaporation and the least rainfall.

The excessive evaporation and depletion of ground storage from the very cold winter produced this spring a very small run-off from the watershed. The inhabitants of the district differ as to its smallness. Several declare it is the lowest that has occurred for forty years. Mr. Booth's agent, Mr. O'Connor, whose occupation renders him particularly observant of the quantity of water, states he has seen it once before in twenty-three years as low as it is this season. Although local information is generally at fault as regards the lowness of the water we are probably safe in assuming that the run-off this year is as low as will occur in cycles of ten years.

In measuring the run-off at Talon Chute after the ice left, the same sections used in the winter time were found to be the best for summer measurements—Menard's bridge, White Fish pond and Talon Chute. At Talon Chute narrows it was first intended to use a large canoe out of which to make current meter measurements, but that did not work satisfactorily and as many measurements were to be made at this point, a cable-way was erected with a car from which the measurements were taken. Arrangements were made with Mr. Booth's agent, Mr. O'Connor, that Mr. McLennan should be warned some time before the opening or closing of the gates of the dam so that he could be prepared for measuring.

These gaugings have now been completed practically for the three sections. A list of same is given in Appendix No. 2. It may be necessary to make a couple of measurements at extreme low water in the summer time but at present it is noted that measurements have been taken at every small change of the gauge height from low water to high water, so that the discharge of the river for the total season may be determined when our gauge records are completed.

A gauge was put in, in the Wisa Wasa river. This river drains into Lake Nipissing, but measurements were taken with a view of getting a canal from Wisa Wasa to Depot creek so that the water of the Wisa Wasa could be drawn over to drain into Nosbonsing lake. Lake Wisa Wasa is about one-half the size of Lake Nosbonsing, and it is expected that a reservoir of about six feet can be made there. The cutting of the canal will be about 5,500 feet long with a maximum cut of about 23 feet.

It is possible also at the height of land to store excess water in many of the smaller lakes which lie in Lake Talon watershed. Before investigating the size of these, however, it was thought best to investigate the impossibility of turning the waters of the Amable du Fond into those of Lake Talon or Lake Nasbonsing, in case the supply of water from the summit were insufficient. To do this a tunnel and a canal would be necessary, the total combined length of which would be between five and six miles. The cost could not be excessive, and the Amable du Fond watershed with its great lakes would supply ample water for the fullest requirements of the said canal. As instructed by you, a more detailed study of this feeder will be made later when the bush is more easily travelled and surveyed. Some gaugings of the Amable du Fond have been taken and these will be continued. Two gaugings have also been taken by Mr. MacLennan of the Mattawa river at Mattawa.

Division 2.—The second division of the work is the general study of the Ottawa river and its tributaries, comprising :—

1. A collection of all available data with respect to the present condition of established water power plants, as well as all other unused power along the canal route.

2. The study of the regime of the rivers to be canalized in order to collect the necessary information to strike out the curves of the discharge of the river, and the study of the probable effects of impounding surplus water in the spring in the upper reaches of the river.

These questions depend primarily on the quantity of water flowing in the river and particularly on the quantity flowing at extreme low and extreme high water.

Under Section 2.—The study of the regime of the rivers to be canalized, &c. Amongst the most important sub-divisions are :—

(a) The determination of the extreme high water flow at different points in the river from which to properly calculate the effects of dams and other structures to be built, especially the height of the water and extent of the flood.

(b) To determine, by co-relation from our water levels and measurements of flow of this and previous years, the probable duration of such floods.

(c) To determine the effect on these floods of storing the surplus waters of the spring in the reaches of the river, and to determine the extreme low water level and the height to which this can be raised by storage.

(d) To calculate if possible from these, with our statistics of previous years of rainfall, snowfall, sunshine, temperature, evaporation, &c., the conditions which produce such extreme high water and the probability of their occurrence.

(e) And to study the general problem of the run-off of the watershed and the possibility of the flow of the river being altered as the land is cleared and the character of the watershed changed.

To determine these points with great accuracy would require much more information than it is possible to obtain during the short period of the survey, but considerable information has been collected from previous years and it is hoped that a satisfactory solution of the above problem will be arrived at.

The principal information required is :—

Daily water levels along the route of the river.

The measurement of the quantity of water flowing in the river at its different stages.

Statistics of rainfall, snowfall, evaporation, &c.

Gauges were placed in the Ottawa river and in the principal feeders or tributaries, in March and April. A list of these is given on Appendix No. 3.

In the Ottawa itself, with the exception of the above, the district engineers have had gauges placed at the important stretches and have made arrangements for their being read. The government (Department of Railways and Canals) have gauges at the Rideau locks, Grenville, Carillon and Ste. Anne, which have been read since 1844, and which are available for our use. Many other water levels have been obtained and a list of these is added, Appendix No. 4.

The gauges used are made of galvanized iron strips, 12 feet, 16 feet and 20 feet long, enamelled white on the side and divided into feet and tenths by black lines. A dozen of these gauges can be easily carried by one man or shipped by express. In placing these gauges they are nailed to a plank and the plank securely nailed to a pier or dam in the river. In most cases planks are nailed alongside these gauges to protect them from ice or logs. The gauges are referred to some fixed bench marks so that later they can be checked and also tied in with the precise sea levels now being carried through.

Gauge readers are employed to read these gauges daily, and the results of these readings, with notes on the weather, &c., are sent in to the city office at the end of each week on post-cards supplied them from there. As a general rule the amount paid gauge readers for reading one gauge is $5 per month, but in some cases where the gauge is at a considerable distance the amount is increased to $7 or even $10 per month.

The gauges on the tributaries were placed in as far as possible so that they would not be affected by the back water from the Ottawa river, but in many cases they are

in some mill pond and are affected (especially in low water) by the condition of the gates of the dam. In these cases, however, the gauge recorder notes the condition of the gates when he reads the gauge so that allowance can be made. These heights are tabulated in this office.

Re : the measurement of the quantity of water flowing in the river at the different stages. These measurements were required every few miles along the route—especially the extreme high water measurements. To get this as thoroughly as the limits of the survey would allow it was decided to measure the Ottawa at its four branches at Montreal; at Besserer's Grove, twelve miles below Ottawa; at La Passe near Coulonge, and at Deux Rivières ; twelve miles below Mattawa. By our measurement of the tributaries which enter the river between these different sections we would be able to determine, with sufficient accuracy the quantity of water at any other section of the river.

In choosing these sections the soundings made in the winter time in the locality at which measurements were wanted were examined and a suitable section for metering selected. This required that the bed of the river be regular, the current parallel and unbroken by eddies and swirls and that the current should not be greater than five feet per second, or less than one-half foot per second.

In measuring, the method of procedure was as follows :—

A suitable base line was selected. At one end of this base line a section was laid off across the river as nearly as possible perpendicular to the lines of the current. Five hundred feet along the base line a second section was laid off parallel to the first. Buoys were floated down and the position at which they crossed each of these parallel lines found by means of a transit intersection. This was done in five or six different places across the river, the line of these currents laid down on paper and the mean direction of the current determined. Then from the end of the base line the section for metering was laid perpendicular to the mean direction of the current as determined. (If any current was found which varied greatly from the mean direction then the section was rejected). This line was divided up into equal distances, of usually one hundred feet, and the angle that the line, drawn from each of these points to the end of the base line, made with the base line was obtained.

A small gasoline launch was equipped to do the metering work. It had a suitable rigging to cross the center of the boat, with pulley and winch, so that the meter with the heavy weight could be easily handled by one man. The meter was suspended by a wire cable on which the distances were marked. The boat was manipulated and drawn into position from two anchors thrown out above the section by a man in a boat. The launch was first gotten in line and then drawn so that the meter occupied a point suspending the proper angle at the end of the base line, so that measurements were taken at equal distances.

In making the flood discharge measurements the six-tenths method was used. The depth was first found with a sounding line and the meter suspended at a six-tenths down. Measurements taken at every two feet in depth at Besserer's Grove section gave a discharge within one and one-half per cent of what the six-tenths method gave. The above method of measuring was used generally on all sections on the Ottawa river. At La Passe and Deux Rivières a row boat was substituted for the launch. On the Back river and at St. Eustache measurements were taken from the bridges. In the majority of cases on the tributaries the measurements were taken in this latter way. On the Gatineau, measurements were taken from the launch by the six-tenths method. Float measurements were occasionally used as a check.

The above work was done by F. W. Anderson, assistant engineer, and party, and the results of these measurements to date are given in Appendix No. 5, together with the results of measurements made by others, especially Mr. C. E. Gauvin, superintendent of surveys, Department of Lands, Mines and Fisheries, Quebec, and published in his report.

A complete set of gaugings of the Ottawa was made or collected by the writer for a report by Messrs. Kennedy on the Chaudiere and for other work, and permission to use these was obtained from the property owners and the Messrs. Kennedy.

The current meters were rated on an average once a week. In this work the style of meter was the Price current meter, 600, although on some of the work on the tributaries a Price Patent Accoustic meter was used. An admirable rating station was secured at Britannia in the power canal of the Metropolitan Electrical Company. This canal is not being used at present and the water in it has no current. A straight trestle 200 feet long crosses the canal and a suitable car was found on the works. The method of rating was the ordinary one used under such circumstances, viz.: the trestle was divided into equal distances so that the time of passing each of these could be noted and a uniform speed obtained. A plank, with a pulley, was attached to the car and the meter raised or lowered as required. Two men pushed the car at uniform rates of speed, and the number of revolutions, time and distances were noted.

As a general rule the engineer in charge of current meter work returned to the city on Saturday, and either on Saturday afternoon or Monday the current meter was again rated so that any difference in the rating of the meter from the previous week could be found. Very little variation was noted in the meter excepting a gradual wearing of certain parts which slightly increased friction.

Under section No. 3, the Meteorological Observatory of Toronto, have observations of the rainfall at various points in the watershed, some of them dating as far back as 1871. To supplement these, rain gauges were put in each of the following stations :—Fitzroy Harbour, Gower point, Bryson and Britannia. These have been read by the water gauge readers of these different places.

The results of the evaporation tests made by Mr. Stupart, in Toronto, are also included, Appendix No. 6. An evaporation tank has also been placed at Britannia in order to determine the difference between evaporation here and in Toronto. This is read by Mr. Johnson.

A list of plants made or collected by this office is given in Appendix No. 7.

A statement of expenses is given, Appendix No. 8.

Yours respectfully,

ALEXANDER McDOUGALL,

Hydraulic Engineer, Georgian Bay Ship Canal Survey.

APPENDIX No. 2.

MEASUREMENTS OF THE MATTAWA RIVER.

Locality.	Date.	Water level at gauge, these figures to be reduced to sea level.	Discharge cub. feet per sec.	Remarks.
	1905.	Gauge.		
Mattawa R. at Mattawa	April 14..	11·60	2,005	
" "	May ..	9·50	2,385	
" ¾ mile below, Pimisi Bay	March 14..	93·87	197	Pimisi Gauge.
Pimisi Bay	" 14..	93·87	200	
Below Pimisi Bay	Feby. 25 .	93·77	255	
"	" 27..	93·73	245	
"	" 28..	93·71	259	
Talon Chute Narrows	March 11..	93·89	200	
"	" 27.	94·25	337	
"	" 27..	94·25	357	
"	" 28..	94·25	304	
"	April 5..	95·30	680	
"	" 5..	95·30	658	
"	" 10..	95·42	877	
"	" 10..	95·42	859	
"	" 10..	95·42	862	
"	" 11..	95·48	875	
"	" 11..	95·48	856	
"	" 17..	95·55	918	
"	" 17..	95·55	901	
"	" 25..	93·99	253	
"	" 25..	93·99	254	
"	" 26..	94·01	202	
"	" 26..	94·01	220	
"	May 1..	94·57	427	
"	" 1..	94·57	468	
"	" 2..	94·60	496	
"	" 4..	94·96	601	
"	" 4..	94·96	613	
"	" 6..	95·02	626	
"	" 6..	95·02	592	
"	" 9..	95·33	736	
"	" 9..	95·33	828	
"	" 13..	95·20	751	
"	" 13..	95·20	670	
"	" 16..	95·22	704	
"	" 16..	95·22	697	
"	" 22..	95·60	849	
"	" 22..	95·60	902	
"	June 6..	95·90	918	
"	" 10..	95·38	312	
"	" 12..	95·47	220	
"	" 16..	96·02	1,150	
"	" 16..	96·02	1,099	
"	" 23..	96·02	1,186	
"	" 23..	96.02	1,098	
1 mile below Turtle Lake	March 8..	93·09	42	
"	" 30..	93·24	70	
"	" 30..	93·24	68	
"	April 6..	93·52	113	
"	" 6..	93·52	113	
"	" 7..	93·48	105	
"	" 7..	93·48	102	
"	" 18..	94·11	91	Log jam.
"	May 17..	95·27	335	Logs below section.
"	" 17..	95·27	444	" cleared.
"	" 24 .	94·17	187	
"	" 24..	94·17	187	

MEASUREMENTS OF THE KAI-BUS-KONG RIVER.

Locality.	Date.	Water level at gauge, these figures to be reduced to sea level.	Discharge cub. feet per sec.	Remarks.
	1905.	Gauge.		
Menard's Bridge	March 3	134·32	19	Gauging through ice.
"	April 6	134·04	148	
"	" 6	134·04	146	
"	" 7	133·96	140	
"	" 7	133·96	143	
"	" 12	133·99	129	Dammed by ice.
"	" 12	133·99	128	
"	" 19	133·85	116	
"	" 19	133·85	99	
"	" 19	133·85	110	
"	" 19	133·85	116	
"	" 26	133·75	99	
"	" 26	133·73	96	
"	" 29	133·78	109	
"	" 29	133·78	116	
"	May 18	134·27	169	
"	" 18	134·27	169	
"	" 24	133·87	114	
"	" 24	133·87	118	
"	" 29	136·27	598	Dam open.
"	" 29	137·37	612	"
"	" 29	136·67	718	"
"	" 29	136·57	703	"
"	" 29	133·57	79	Dam closed.
"	" 29	133·57	77	" "
"	" 29	134·57	327	" open.
"	" 29	139·07	407	" "
"	" 29	135·47	492	" "
Red Rapids	June 14	133·72	157	
Menard's Bridge	" 14	133·72	95	
"	" 14	133·72	111	

MEASUREMENTS OF STREAMS WEST OF MATTAWA.

Amable du Fond R	May	—		627	
"	"	—		597	
Patois River					
Estimated				305	
Amable du Fond R	June	24		456	Dam closed June 16.
"	"	24		421	
Boom Creek	April	15		191	
Depot Creek	"	12		56	
Wistiwasing Brook	"	13	3·90	15	

MEASUREMENTS OF THE OTTAWA RIVER.

Locality.	Date.	Water level at gauge, these to be reduce to sea level.	Discharge cub. feet per sec.	Source of Information.
	1905.			
3 miles below Vaudreuil	May 24		29,492	Hydraulic Dept., G.B.S.C.
Ste. Anne de Bellevue	" 24		39,815	" "
Back River at Cartierville	" 22		65,100	" "
Mille Ile River	" 20		16,664	
Total			151,071	
	1905.			
Besserer's Grove	May 8	6·92	82,875	" "
" "	" 17	9·38	119,000	" "
" "	June 13	6·50	81,391	
	1904.	Deschenes Lake.		
Above the Chaudiere	March 17–19	66·92	11,500	Chaudiere owners, Messrs. Kennedy.
	1900.			
" "	April	67·60	20,842	Biggar.
	1904.			
"	May 9–12	74·25	129,454	Chaudiere owners, Messrs. Kennedy.
" "	June 13	74·66	145,118	" "
" "	July 4–5	72·17	78,864	" "
" "	Aug. 1–2	69·75	43,515	" "
	1900.			
Portage du Fort	Sept. 14	Water level 2 ft. above its lowest	492	Dept. of Lands, Mines and Fisheries, Que.
Calumet Channel		Low water	assu'd 8,000	" "
" Village	Aug. 1900	3 ft. above its lowest, Bryson	16,565	" "
	1905.			
4 miles above Campbell's Bay	May 12	388·70	26,673	Hydraulic Dept., G.B.S.C.
		Gower Point.		
2 miles below Fort Coulonge	" 15	333·37	60,654	" "
" "	June 28	390·31	43,957	" "
	1901.			
Above La Roche Capitaine Rapids	March 14–16	Low water	8,321	Dept. of Lands, Mines and Fisheries, Que.
	1905.			
Deux Rivieres	May 15		44,510	Hydraulic Dept., G.B.S.C.
	1901.			
Mattawa from T. railway bridge	March 13	Low water	8,225	Dept. of Lands, Mines and Fisheries, Que.
La Cave Rapids, 6 miles above Mattawa	March 20	"	est. 7,800	" "
Les Erables' Rapids, 10 miles above Mattawa	" 20		assu'd 7,700	" "
	1902.			
Long Sault	March	Low water	appr. 6,500	" "

MEASUREMENTS OF THE SOUTH SHORE TRIBUTARIES OF THE OTTAWA RIVER.

Locality.	Date.	Gauge.	Discharge.	Remarks.
	1905.			
La Graisse R. (Rigaud)	April 5	92·55	1,997	Hydraulic Dept., G.B.S.C.
" "	June 7	89·34	28	" "
Nation R. (Plantagenet)	March 30	95·64	17,708	" "
" "	June 8	91·28	176	" "
Rideau R. (Canada Atlantic Ry. C.	April 20–21	2·77	2,3·5	" "
" "	June 6	1·40	391	" "
Mississippi R. (Galetta)	April 8	91·99	7,755	" "
" "	June 14	89·48	2,005	" "
Madawaska R. (Arnprior)	April 14	93·88	7,904	" "
" "	" 25	93·46	6,362	" "
" "	June 15	94·61	5,841	" "
Bonnechere R. (Renfrew)	April 26	1·65	1,771	" "
" "	June 16	1·50	1,613	" "
Muskrat R. (Pembroke)	April 28	97·19	402	" "
" "	June 16	97·14	441	" "
Petewawa River	April 27	100·90	1,864	" "
" "	June 17	102·36	4,000	" "

MEASUREMENTS OF THE NORTH TRIBUTARIES OF THE OTTAWA RIVER.

Locality.	Date.	Gauge level of water.	Discharge cub. feet per sec.	Source of information.
	1905.			
North R. (St. Andrews)	June 3..	82·31	883	Hydraulic Dept., G.B.S.C.
Rouge R. (Calumet)	" 1..	90·33	4,277	" " "
North Nation R. (Plaisance)	" 1..	92·82	1,546	" " "
	1901.			
" (below Lake Simon)	Nov. 8-9..		237	Dept. of Lands, Mines and Fisheries, Que.
	1905.			
Blanche R. (Thurso)	May 31..	103·0	186	Hydraulic Dept., G.B.S.C.
Du Lievre (Duleivre)	" 30..	91·61	12,456	" " "
" (Township of Campbell)	1902. Sept. 24		1,488	Dept. of Lands, Mines and Fisheries, Que.
" (L'Orignal Chute)	" 24..		est. 990	" " "
	1905.			
Big Blanche R. (E. Templeton)	May 29..	97·23	261	Hydraulic Dept,, G.B.S.C.
Gatineau R.	" 18..	6·10	35.571	" " "
"	June 10 .	3·30	19.250	" " "
	1902.			
" (from Gatineau P. Bridge)	October.		5,240	Dept. of Lands, Mines and Fisheries, Que.
" (below Maniwaki)	"	Ordinary summer level E. channel	3,375	" " "
		W. channel	875	" " "
	1905.			
Quion R.	May 30..	105·10	208	Hydraulic Dept., G.B.S.C.
Coulonge R.	" 31..	105·30	6,466	" " "
"	June 29..	104·40	3,143	" " "
Black R. (Waltham)	May 31..	104·43	3,998	" " "
" "	June 29..	103·64	1,858	" " "
DuMoine R.	June 2..	103·80	4,000	" " "
Magnisippi R.	" 1..	89·92	621	" " "
	1902.			
Kippawa R., at outlet to lake	March 22..	Lowest water	603	Dept. of Lands, Mines and Fisheries, Que.
L. Kippewa into Gordon Creek	" 24.		43	" " "

APPENDIX H.

TEST BORINGS

REPORT ON TEST BORINGS TO JUNE 30, 1905

Acting under instructions from you, contained in your letter of April 25, 1905, arrangements were made with Mr. S. J. Chapleau, engineer-in-charge of the Nipissing district, to place one of the Pierce Test Boring Machines on section 2, at Mattawa, Ont.

This party has been called Test Boring Party No. 1.

The equipment was shipped to Mattawa on May 4, and actual boring operations were begun on May 8, on a proposed location passing back of the town of Mattawa. This line is approximately 1½ miles in length, and connects the Mattawa and Ottawa rivers.

The material encountered on this location was found to consist of a deposit of closely compacted boulders and gravel, varying in depth from four to fifteen feet, overlaying fine sand, coarse sand, and sand and clay. No rock above grade was met with here.

This deposit of boulders and gravel is of glacial drift origin, and is characteristic, to a greater or less extent, of the Laurentian formation throughout the Nipissing and most of the Ottawa districts.

Considerable trouble has been experienced in using the Pierce Test Boring Machine, where this boulder drift is encountered, and it has been found necessary to finally adopt the method of digging pits, and removing the boulders by means of a tripod and block and tackle. When this was accomplished, the machine was set up and satisfactory progress was made.

The removal of this boulder drift by the above method, is a slow and arduous undertaking. The nature of the material and methods used in excavating are shown in the accompanying photographs.

Penetration by means of the Pierce Machine, in the underlaying strata, in a succession of driving of the 2-inch casing, and washing out inside with 1-inch pipe connected with a force pump.

The use of dynamite has been resorted to, with considerable success, in connection with the use of the Pierce Machine, in loosening up compacted material, and breaking up occasional boulders.

Samples of the different classes of materials encountered are kept in properly labelled four ounce bottles.

Mr. H. M. Davy was appointed to take charge of this party, and entered upon his duties on May 20.

SUMMARY OF WORK, TEST BORING PARTY 1, MATTAWA, ONT.

Test borings on the Mattawa location were commenced on May 8, and completed on June 7, 1905.

Number of test holes, 16.

Average distance apart, 400 feet.

Approximate depth of each hole, 18 feet.

Pit excavation, 54 feet boulders and gravel.

Test boring machine 230 feet. Fine sand, coarse sand, sand and clay, gravel.

Force employed, assistant engineer, foreman, 4 labourers, 1 horse and cart and teamster.

TEST BORING PARTY, NORTH BAY, ONT.

As the surveys on Section 2 were not sufficiently advanced to permit of further test borings being taken, the whole equipment was moved up to North Bay, on June 8, and test borings commenced on June 10, on the line leading in from Rocky Point, Lake Nipissing, to Turtle lake.

No difficulty was encountered in these borings, rapid progress was made, and work was completed on June 26.

SUMMARY OF WORK, TEST BORING PARTY 1, ROCKY PT. LINE.

Total number of test holes	85
	Feet.
Average distance apart	100
Total depth bored	2,087
Average depth of hole	24·6

Nature of materials encountered: sandy loam, swamp muck, fine sand, fine sand and clay, coarse sand.

Rock surface, Archaean gneiss, was encountered above grade in fifty-two of the above eighty-five holes.

TEST BORING PARTY NO. 2.

Test Boring Party No. 2, was organized in June, to operate on the Montreal division.

Arrangements were made with Mr. C. R. Coutlée, to place this party on section 9, on a line from the Lachine canal, passing through the town of St. Paul, Quebec, and entering the St. Lawrence river opposite Nun's island.

The equipment was shipped by Ottawa river boat to Côte St. Paul lock, Lachine canal, on June 11, and the full complement of party was made up on June 18 and 19. Boring operations began on June 21.

The material encountered on this location, up to June 30, was sandy loam, sand, shale gravel, shale float and Utica shale.

Considerable rock was encountered above the grade line. The nature of this rock is Utica shale, and it has been excavated in Montreal harbour, and on Lake St. Louis, without resorting to blasting.

A profile of this rock surface, over the line of borings, shows a marked anticline, below grade at the Lachine canal, and rising up at summit to within 3½ feet, from ground surface, near the public school house, town of St. Paul, and then dipping rapidly to the south.

SUMMARY OF WORK, TEST BORING PARTY NO. 2, TOWN OF ST. PAUL, QUE.

Total number of test holes	7
	Feet.
Average distance apart	500
Pit excavation (float shale)	24
Boring machine (loam, sand, shale gravel)	56
Total depth bored	80
Average depth of each hole	11·4

Force employed : one assistant engineer, one foreman, three labourers, one horse and cart and teamster.

Period covered, June 11 to June 30.

As the period covered by the operation of both test boring parties has been so short, it has been considered advisable to make any attempt to compile an average cost record per foot bored, which would have to include cost of equipment and initial outlay.

A copy of the general instructions to assistants in charge of test boring parties, is inclosed.

I beg to remain, sir,

Your most obedient servant,

(Sgd.) A. R. DUFRESNE.

TEST BORING (GEORGIAN BAY SHIP CANAL SURVEY).

INSTRUCTIONS TO ASSISTANT ENGINEERS IN CHARGE.

1. The object of these test borings is to determine the depth and character of each different kind of material to be excavated in the proposed canal location, in order that a correct estimate may be made.

2. The location of each test boring must be fully determined with reference to some stadia or transit survey, in such a manner as to enable the accurate location of the boring on the map. The elevation of the ground surface or river surface (from gauge) at which the boring is made, must also be determined. The engineers in charge of the divisions on which borings are to be made, will furnish you with an individual plan, showing the locality and the extent of the borings required, and will point out to you the triangulation and traverse points, and give you the ground surface elevation of the points to be bored. The elevation of the grade of excavation will also be furnished you.

3. Careful measurements are to be taken to each change of material found in the boring, from the elevation of the ground surface, and samples are to be preserved in tins furnished for that purpose.

4. The greatest care must be taken in the determination of the elevation of rock surface, and it is desired to firmly impress upon those in charge of the taking of these borings to avoid having the boring hold up on hard material or boulders and call the same rock surface. Rock surface can generally be determined by taking another boring or by using dynamite.

5. Engineers in charge of boring operations are required to keep a complete daily record of work and events connected with their work in a daily journal.

PRECISE LEVELS

DEPARTMENT OF PUBLIC WORKS OF CANADA,
GEORGIAN BAY CANAL,
GEODETIC LEVELLING,
CHIEF ENGINEER'S OFFICE,
OTTAWA, Friday, June 30, 1905.

ARTHUR ST. LAURENT, Esq.,
Engineer-in-charge.

SIR,—I have the honour to submit the following report of work performed up to date, in connection with the Geodetic Levelling.

THE LEVELLING WAS COMMENCED IN NOVEMBER, 8 MONTHS AGO.

November, 1904.

The levelling was started at C.P.R. bridge, Lachine; following lower Lachine road to Lachine canal, then along Main or Post road to Beaconsfield.

December, 1904.

Along Post road from Beaconsfield to Ste. Anne de Bellevue; along G.T.R. from Ste. Anne de Bellevue to Vaudreuil; Post road, from Vaudreuil to Cascades; north side of Soulanges canal, from Cascades to Coteau Landing.

January, 1905.

Along C.P.R. from Vaudreuil to Rigaud; Rigaud to Pointe Fortune; Rigaud to Barb; The Brook to Caledonia Springs.

February, 1905.

Along C.P.R. from Caledonia Springs to Vankleek Hill; along C.A.R., from Vankleek Hill to Hawkesbury; C.P.R., from Vankleek Hill to Barb St. Eugène; The Brook to Central Station, Ottawa; Central Station to foot of Rideau canal; Central Station to City Hall, Ottawa; along C.A.R., from Carp to South March Station.

March, 1905.

Along C.A.R., from South March to over-head crossing near Britannia; along C.P.R., from over-head crossing to Union Station; Union Station to City Hall, via Broad, Ottawa, Wellington, Bank and Albert streets; Ottawa Waterworks to foot of Rideau canal, via Union, Hull, Alexandria Bridge and Rideau canal; along C.A.R., from Carp to Arnprior.

April, 1905.

Along C.P.R., Arnprior to Sand Point; Haley's to Sand Point, Haley's to Pembroke; Chalk River to Pembroke.

May, 1905.

Along C.P.R., Chalk River to Mackay; Deux Rivières to Mackay.

June, 1905.

Branch lines; C.P.R., track at Bissetts to Ottawa river; C.P.R., track at Deux Rivières to foot of Deux Rivières rapids via Ottawa river; along C.P.R., from Deux Rivières to Eau Claire; North Bay to Eau Claire.

AMOUNT OF LEVELLING COMPLETED UP TO DATE.

—	Field work: number of days spent outdoors.	Amount of one day during whole month	Minimum of one day during whole month.	Maximum of one day during whole month.	Average for working days during whole month.	Average for each complete month.
1904.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
November	15	18·00	·25	3·00	1·20	·50
December	16	22·00	·50	3·25	1·35	·71
1905.						
January	20	55·00	1·11	5·34	2·80	1·78
February	19	53·00	·27	5·34	2·79	1·89
March	20	57·00	·27	5·74	2·85	1·84
April	16	54·00	·97	6·08	3·38	1·80
May	16	56·00	1·64	5·40	3·50	1·81
June	18	66·00	·21	6·32	2·72	1·57
General totals and average	140	381	·21	6·32	2·72	1.57

LEVELLING—REMAINING TO BE DONE.

	Miles.
Cornwall to Coteau Landing	35
Rouse's Point to Lachine via St. John's, P.Q.	50
North Bay to Toronto	227
Allandah to Collingwood	35
Total	347

Averaging 1:6 miles per day $= \frac{347}{1 \cdot 6} = 217$ days $= 7$ months.

The remaining levelling should therefore be completed by February 1, 1906.

Your obedient servant,

(Signed) CHARLES F. X. CHALONER.

PART V

REPORT ON GOVERNMENT TELEGRAPH LINES

FOR THE

FISCAL YEAR ENDED JUNE 30, 1905

DEPARTMENT OF PUBLIC WORKS.

OFFICE OF THE GENERAL SUPERINTENDENT,
OTTAWA, Ont., December 28, 1905.

F. GELINAS, Esq.,
Secretary, Department of Public Works.

Sir,—I beg to submit herewith my report on the Government Telegraph Service for the twelve months ended June 30, 1905.

This report, as usual, is prefaced by a list to the present date of the land lines and cables in operation ; with data of lengths, year of construction, number of offices at present established, and an estimate of the traffic handled in each instance.

The usual tabular statements, giving lists of offices, operating staff, &c., in the several districts are appended to the report ; likewise the tariff sheets, showing the rates charged for messages on the several lines.

I have the honour to be, sir,
Your obedient servant,

D. H. KEELEY,
General Superintendent.

HEAD OFFICE: DEPARTMENT OF PUBLIC WORKS, OTTAWA.

EXECUTIVE.

The Hon. Chas. S. Hyman, Minister of Public Works.
A. Gobeil, Esq., I.S.O., Deputy Minister of Public Works.

STAFF AT HEADQUARTERS.

D. H. Keeley, general superintendent.
R. Keeley, accountant, telegraph branch.
J. A. Parr, technical assistant.
Miss A. Hardcastle, stenographer.

GENERAL INSPECTORS.

A. B. McDonald, Meat Cove, Cape Breton, lines in Nova Scotia and New Brunswick.
M. W. Crean, Quebec, lines on north shore St. Lawrence and Anticosti.
J. S. Macdonald, Qu'Appelle, lines in North-west and south British Columbia.
J. E. Gobeil, lines in Yukon division.

SUPERINTENDENCIES.

Edwin Pope, Quebec, dist. supt., North Shore and G.N.W. traffic.
J. C. Taché, dist. supt., Chicoutimi district and north shore to Bersimis.
E. H. Tetu, Penticost, dist. supt., North Shore, East Bersimis.
A. Malouin, dist. supt., West Point, Anticosti Island.
A. LeBourdais, Grindstone, dist. supt., Magdalen islands.
D. C. Dawson, St. John, N.B., dist. supt., Cape Breton system.
Mrs. C. C. Seely, Grand Manan, N.B., dist. supt., Bay of Fundy system.
J. McR. Selkirk, Leamington, Ont., dist. supt., Pelee Island system
Robt. C. Macdonald, Qu'Appelle, dist. supt., North-west Territoiries.
Wm. Henderson, Victoria, dist. supt., British Columbia, south.
C. S. Stevens, Kamloops, B.C., supt., Penticton line.
J. Y. Rochester, Vancouver, B.C., acting supt., Yukon system.
J. T. Phalen, Ashcroft, B.C., dist. supt., Ashcroft-Atlin.
A. B. Clegg, White Horse, Y.T., dist. supt., Atlin-Boundary.

GOVERNMENT TELEGRAPH SERVICE.

Location of Lines.	Points connected.	Year.	Length of Lines.			Number of Offices.	Yearly Average of Messages Sent.
			Land Lines.	Cables.	Total.		
			Miles.	Kt's.			
Newfoundland..	Port au Basque—Cape Ray.	1883	14		14	2	
Nova Scotia	North Sydney—Meat Cove (with loops).	1880-02	167¼		168¼	17	5,000
"	Across Bras d'Or Channel	1880		¾			
"	" St. Ann's Harbour	1887		¼			
"	" Ingonish Harbour	1887		¼			
"	Bras d'Or—Kempt Head	1904	20		20	3	
"	Meat Cove—St. Paul's Island	1890		20	23	1	50
"	On St. Paul's Island	1890	3				
"	Mabou—Meat Cove	1887-00	109		109	9	2,500
"	Barrington—Cape Sable	1883	16		17¾	Leased.	
"	Across Bear Point Channel	1883		1½			
"	" Lt. House Channel	1883		¼			
"	Mabou—Port Hawkesbury	1903	41¾		73¾		
"	Port Hawkesbury—St. Peters	1903	32				
"	St. Peters—Main-à-Dieu	1904	84¼		128¾	15	1,500
"	Main-à-Dieu—Scatarie	1902		1¾			
"	On Scatarie Island	1904	7¼				
"	Gabarous—North Sydney	1904	35½				
New Brunswick.	Chatham—Escuminac	1885	42		42	6	600
	Bay of Fundy System:						
"	Eastport—Campobello	1880		1¾			
"	On mainland Eastport	1880	½				
"	On Campobello Island	1880	7½				
"	Campobello—Grand Manan	1880		7¼	44¼	10	2,500
"	On Grand Manan Island	1880	25¼				
"	Grand Manan—Cheney's Island	1890		½			
"	On Cheney's Island	1890	¾				
"	Cheney's Island—Whitehead Island	1890		¾			
"	Partridge Island—Fort Dufferin	1900			¾		
Quebec	Bay St. Paul—Chicoutimi	1881-04	98		98	6	2,000
"	St. Alexis—St. Catherines Bay	1904	78		78	5	
"	Murray Bay—St. Agnes	1904	14½		14½	2	
"	Bay St. Paul—Petite River	1904	13		13	1	
"	Chicoutimi—St. Charles	1903	37		61	10	
"	St. Anne—LacClaire	1903	15				
"	St. Anne—St. Fulgence	1903	9				
	North Shore Line:						
"	Murray Bay—Chateau Bay	1881-01	1,028½		1090	66	15,000
"	Across Saguenay River	1883		1¼			
"	Bersimis to Manicouagan	1883		12			
"	Manicouagan to Godbout	1883		26			
"	Chateau Bay—Belle Isle	1901		22¼			
"	Bersimis—Godbout (alternative line)	1904-05	80		80		
	Quarantine System:						
"	Quebec—L'Ange Gardien	1885	13		52¾	8	2,300
"	L'Ange Gardien—Orleans Island	1885		¾			
"	On Orleans Island	1885	29¼				
"	Orleans Island—Isle Réaux	1889		2			
"	On Isle Réaux	1889	2½				
"	Isle Réaux—Grosse Isle	1889		2			
"	On Grosse Isle (all told)	1885-94	3¼				
"	St. Jean—St. Famille (loop)	1904	5½		5½	1	

GOVERNMENT TELEGRAPH SERVICE—*Concluded.*

Location of Lines.	Points connected.	Year.	Length of Lines.			Number of Offices.	Yearly Average of Messages Sent.
			Land Lines.	Cables.	*Total.		
			Miles.	Kt's.			
	Anticosti System:						
Quebec	Gaspe—L'Anse à Fougère	1881	28		316½	9	1,500
"	L'Anse à Fougère—Anticosti	1881		44¼			
"	On Anticosti Island	1881–90	223¾				
"	Anticosti—Long Point, Mingan	1890		21			
	Magdalen Island System:						
"	Meat Cove, C.B.—Magdalen Islands	1880		55	243	12	2,100
"	On Magdalen Islands	1881–02	83½				
"	Grosse Isle—Bryon Island	1902		11			
"	Bryon Island—Anticosti	1902		93			
	Pelee Island System:						
Ontario	Leamington—Point Pelee	1889	12		42½	9	800
"	Leamington Dock—Pelee Island	1901		17			
"	On Pelee Island	1889–00	13½				
North-west	Qu'Appelle—Edmonton	1883	625		625	16	9,500
"	Moosejaw—Wood Mountain	1885	90½		90½	2	300
"	Wood Mountain—Willow Bunch	1904	38		38	5	2,000
"	Edmonton—Indian Ag. & Stoney Plain	1904	24		24		
"	Edmonton—Athabaska Ldg	1904	98		98		
"	Duck Lake—Batoche	1902	9		12½	3	200
"	Duck Lake—Indian Agency	1902	3½				
"	Edmonton—St. Albert	1887	9		36	3	
"	St. Albert—Qui Barre and Alexandria	1902	27				
"	Lloydminster (loop) near Pitt	1904	22		22	1	2,500
"	Victoria—Andrew and Whitford	1904–05	11½		11½	2	400
British Columbia	Ashcroft—Quesnelle (local wire)	1878–87	215		215		
"	Victoria—Cape Beale	1891	118		118	6	800
"	Nanaimo—Comox	1893	81		81	8	8,000
"	Parksville—Alberni	1895	29½		86½	2	
"	Alberni—Cape Beale	1899	57				
"	Alberni—Clayoquot	1902	96¾		96¾	5	550
"	Kamloops—Lower Nicola	1899	67		67	9	1,400
"	Lower Nicola—Penticton	1905	168		168	7	6,000
"	Vernon—Kilowna	1905	35		35	2	1,000
"	Golden—Windermere	1901–02	92		92	5	1,500
"	Duncan Sta.—Salt Spring Isl. & Extens.	1902–04	24	¾	24¾	4	
Yukon	Ashcroft—Dawson and Boundary	1899–01	1845		2,252½	66	45,000
"	Hazelton—Port Simpson and Aberdeen	1901–02	202½				
"	Tagish—Cariboo Crossing	1901	18				
"	150 mile Sta.—Quesnelle Forks	1902	64				
"	Ashcroft—Lillooet	1896	62				
"	Quesnelle—Barkerville	1887	61				
	Total, end of 1905		6586	344¼	6930¼	338	115,000

* For convenience in totalling, the knots of cable are regarded as statute miles.

REPORT ON THE GOVERNMENT TELEGRAPH SERVICE 1904-5.

EXPLANATORY NOTES.

The tabular statement prefacing this report shows the total mileage, &c., of the telegraph lines operated by the government. Lines that have been subsidized or constructed and transferred by the government for operation by private companies are not included in this list.

The matter in the following pages comprises merely a statement of specific actions taken in the course of the year, and in any case where no particular reference is made to a line found mentioned in the list, the understanding intended to be conveyed is that that line has been satisfactorily operated throughout the year, without any change of conditions since last made mention of in the annual reports.

NEWFOUNDLAND.

The line from Port au Basque to Cape Ray continued to be operated as heretofore, under an arrangement with the Anglo-American Telegraph Company.

MARITIME PROVINCES.

General Inspector.—With a view to facilitating the operations of the service and securing uniformity as far as practicable in the upkeep of the lines, the appointment of Mr. A. B. McDonald, agent at Meat Cove, C.B. to the position of general inspector for all of the lines in New Brunswick and Nova Scotia was made dating from May 9, 1905.

Scatarie Island Cable.—This cable which had been put in order on July 23, 1904, became interrupted again on November 3 following and has since remained unattended to owing to the cableship *Tyrian* when available being required on more important sections.

General Repairers.—For the Port Hawkesbury-Gabarous section Geo. E. Bissett, of St. Peters, was appointed general repairer in August, 1904, and V. A. McLennan, of Inverness, was appointed to take the place of W. J. Smyth, former general repairer for the Port Hawkesbury-Meat Cove section from March 1, 1905.

The poles along the line between Ingonish and Meat Cove were overhauled and reset; and some general repairs were made along the other lines in Cape Breton in the course of the autumn of 1904 and the summer of 1905; the work being done by the regular linemen with local assistance in the several sections. With the exception of a few poles obtained locally where required no renewals were called for, and the lines are now in good order for the coming winter.

Construction of new lines.—The line mentioned in last year's report as being built by Mr. Donald McKenzie, between Big Bras d'Or and Upper Kempt Head, 20 miles, was duly carried to completion and offices were opened at the places mentioned hereunder :—

Boularderie Centre, Mrs. J. B. McKenzie, agent, October 24, 1904.

Ross Ferry, Miss Johanna Campbell, agent, October 24, 1904.

Upper Kempt Head, Mrs Murdock McKenzie, agent, November 27, 1904.

Provision has been made in the estimates for the current year for the further extension of this line along the south side of Boularderie and for a line from North Sydney to Eskasoni. The work is now in hand and being performed by day labour, the first named section in charge of Donald McKenzie and the other in charge of Joseph Logue who will on completion take the position of general repairer for these new lines and the older section between Big Bras d'Or and North Sydney.

Local repair sections.—The Cheticamp-Grand Etang section was given up by P. LaRede, the former local lineman in May, 1904. The line was attended to by persons temporarily employed on occasion until in May, 1905, when Mr. J. L. Chiasson was appointed, the yearly allowance being increased to $40, in place of $25 previously paid.

New offices and office changes :—

At Judique, in July, 1904, Miss McPherson, former agent operator resigned and was succeeded by Mrs. M. McDonald.

At Lardois the office was closed March 18, 1905, the former agent-operator, Miss Brymner having resigned. It was re-opened on June 22 following, with Miss Mary D. Finlayson, as agent-operator.

At Strathlorne, midway between Mabou and S. W. Margaree, the establishment of an office was applied for and arrangements to that end were put in hand. (Note.—This office was opened on September 25, 1905, with Miss R. E. McLean as agent-operator.)

At Grand Etang, the office was closed on March 31, 1905, the former agent-operator G. Doucet having resigned.

Low Point Line.—In December, 1904, an arrangement was made locally with the telephone company at North Sydney, whereby the wires of the loop line to Low Point were transferred to their poles and the old pole line that paralleled theirs and had fallen into decay, was done away with.

St. Paul's Island Cable.—The cable between Meat Cove and St. Paul's Island became interrupted on November 14, 1904. The trouble was made out to be in deep water and he services of the ss. *Tyrian* are in requisition for the repair. This stretch with the several others elsewhere mentioned is to be taken in hand as early as practicable next season.

Magdalen Islands.—The work of removal of the pole line and wire throughout the Magdalen Islands system was carried to completion in the course of the past season, 1905, and the further extension of the Point Basse loop three miles to South Beach was made, and an office opened there with Miss Chevrier as agent-operator (July 7, 1905).

Special winter tariff.—With a view to rendering the existing facilities for communication with the mainland as useful as possible during the season of suspension of the mail service, a special rate of ½ cent per word was established last winter for messages between the Magdalen Islands and Meat Cove where the mainland telegraphs are joined at the regular tariff, or the mail is reached for the interchange of letters. It is proposed to continue the same arrangement yearly in the interests of this isolated community.

Bryon Island cables.—The stretch between Bryon Island and Anticosti became interrupted on December 11, 1904, and the one between Bryon Island and the Magdalen Islands on February 11, 1905. In both cases so far as could be locally determined, the trouble is in deep water necessitating the services of the ss. *Tyrian* but it was not found possible to put the ship at work there before the season was too far advanced to make an attempt at repair practicable. It is expected the *Tyrian* will be available early next season when these and other repairs called for can be attended to.

Anticosti Island.—The work of renewal of the wire between Bescie River and Fox Bay of which mention was made in last year's report, was in the course of the past season carried to completion, the work being done by the local general repairer with assistance temporarily engaged on the spot. The line is now considered to be in good and reliable condition throughout.

Long Point—Anticosti cable.—This stretch that had been put in order in August, 1903, as mentioned in last year's report, gave out again on July 16, 1904, but was soon afterwards repaired August 5, 1904, by the ss. *Tyrian*. It, however, ceased to be operative again on November 14, following. In the course of the past season the ss.

Tyrian visited the locality and attempted a repair, but was obliged to leave it before completion, and when ready to return and resume the work the season was too late for the purpose and the repair had to be deferred until next season.

Gaspé—Anticosti cable.—It is perhaps well to mention that at the date of this writing (December 28, 1905), the conditions are such that the Island of Anticosti is altogether cut off from telegraph communication with the mainland in consequence of the Gaspé cable having become interrupted on November 20, 1905, when it was too late in the season to attempt a repair. It will not now be possible to restore the connection till next spring. The possible utilization of the Marconi wireless telegraph stations of the Department of Marine and Fisheries at Heath Point and Fame Point was taken into consideration, but the prospective cost of the unimportant service required was thought too great to be warrantable.

Escuminac line.—This line was thoroughly overhauled and put in good order in the autumn of 1904.

At Black river an office was established in July, 1904, with Miss M. J. McDougall as agent-operator.

BAY OF FUNDY.

Grand Manan-Campobello system.—Some general repairs were made along the line in the course of the past season, and the whole put in good order. There were no interruptions throughout the year.

Note.—The cable between Campobello and Eastport ceased working on July 5, 1905, and when the ss. *Tyrian* was, about September 1, ready for sea to take up her season's work she was sent round there first and this important connection was restored on September 5, 1905.

Barrington-Cape Sable Line.—In the course of the past summer the cable stretch 1½ miles across Barrington Passage gave out and on examination was found to be in bad condition throughout, the iron sheathing wires being in many places corroded away. It was not practicable to send the cable ship to put down a new length. The Telephone company, however, found it practicable to re-establish the connection with the main land by constructing an additional 5 miles of land line to a narrower channel where only a ¾-mile length of cable was called for, this was accordingly carried out; the land line was built at the cost of the government in lieu of an expenditure for the greater length of cable and a ¾-mile length of cable was shipped on a reel and laid in position with very satisfactory results. As now arranged, any repairs that may be called for from time to time can be readily effected by local labour.

Partridge Island Telephone Line.—The shore ends of the cable supplied for this connection in 1899 became exposed by the wearing action of the sea, but were on examination found to be in good condition and were re-trenched in December, 1904.

Yarmouth Telephone Company.—In aid of a required extension of the Yarmouth Telephone company's system from the mainland to Harry's Island, a mile length of deep sea g.p. cable, of the reserve stock on hand at Halifax for repair purposes, was contributed by the government and delivery was made in the course of the past summer.

NORTH SHORE AND CHICOUTIMI SYSTEM.

General Inspector.—As in the case of the lines in the maritime provinces, the appointment of a general inspector, Mr. M. W. Crean, formerly of the Yukon Telegraphs, with office at Quebec, was made in May, 1905. This inspectorship embraces all of the lines in the Chicoutimi district, the Quarantine and North Shore lines and includes Anticosti Island.

District Superintendency.—Beginning with the month of January, 1905, the superintendence of operation and maintenance of the lines in the Chicoutimi district

and on the North Shore west of Bersimis has been added to the duties of the resident engineer, Mr. J. C. Taché, at Chicoutimi. The superintendence of the traffic between the government lines and the Great Northwestern Telegraph system continuing as heretofore.

New lines in Chicoutimi district.—The new lines in the Chicoutimi district mentioned in last year's report have been added to by an extension from St. Fulgence to Descente des Femmes 16 miles, and a loop line 4½ miles from off the main line near St. Alexis to Ferland. Offices were opened as hereunder :—

At Lac Laurent, agent-operator, Simon Gagnon, July 1, 1905.

At Descente des Femmes, agent-operator, Aug. Villincouve, August 1, 1905.

At Ferland, agent-operator, Benite Lavoie, May 1, 1905.

Under appropriations that were made for the purpose for the current year the above mentioned line to Descente des Femmes is being carried down a distance of 31 miles to connect at Sacré Cœur, which is at present the terminus of a branch from Tadousac, and a second wire is being put on the pole line between St. Alexis and Chicoutimi, 14½ miles, which will afford direct connection between Chicoutimi and St. Catherines' Bay via Anse St. Jean.

New Offices and Office Changes.—Besides the offices above mentioned in connection with the new lines in the Chicoutimi district, the following is to be noted.

At St. Ambroise on the Chicouimi-St. Charles line, the office was closed in May, 1905, on the resignation of the former agent, O. Grondin, but it was reopened in June with A. Simard as agent-operator.

At Anse Cheval.—The office was closed on April 30, 1904. It was reopened on February 1, 1905, with Mr. Jos. Degagné, as agent-operator.

And on the north shore line, west of Bersimis.

At Bon Desire, between Tadousac and Bergeronnes, an office was opened August 1, 1904, with Madame E. Gauthier as agent-operator.

At St. Fidèle, the office was closed on April 12, 1904, the former agent, the Rev. N. A. Parent having gone away. It was reopened December 1, 1904, with Jos. Desbiens as agent-operator.

At Cap L'Aigle the office was closed for the winter on December 1, 1904, and reopened on June 1, 1905, with Miss A. Bergeronnes as agent-operator.

Tadousac-Bergeronnes.—By way of an improvement in the repair service the line in this section, 8 miles, is being replaced by a new stretch along a recently constructed roadway that has been provided by the provincial government.

Saguenay Cable.—The cable crossing the Saguenay river at Tadousac became intermittently interrupted on June 7, 1905, and continued so until July 12, when repairs were made by Mr. Louis Roberge, of Quebec. The trouble was found at the Tadousac landing where the cable had in some way suffered an abrasion.

Roadway clearances, &c.—Several bridges and roadway sections over which the telegraph line passes in the Chicoutimi district and on the North Shore were repaired and put in order in the course of the past season under an appropriation that had been provided for improvements to line repair service.

North shore east of Bersimis :—

Bersimis-Godbout land line.—This line which was mentioned in last year's report had been constructed from Godbout as far west as Scougalls Mills, a distance of forty-five miles, was taken in hand again early as practicable in the course of the past season under the superintendence of Mr. M. W. Crean, now general inspector of the North Shore system. It was found on examination of the westward route that the ground for a long distance was boggy and impracticable for telegraph construction, so the existing line on Manicouagan between Point aux Outardes and Point Paradis with one of the wires of the former loop from Point Paradis to Scougalls Mills was taken in to form part of the through circuit and the further length of thirty-five miles was built from Point aux Outardes up one side of the river to where a crossing was readily effected and down the other side to Bersimis where connection was made

on August 3, 1905, when the whole land line was put through and has since been in satisfactory operation. It is worthy of notice that on the very night that this new section was completed and connected up, a line of direct communication was required for the accommodation of the astronomers taking observations at Tadousac and Chateau Bay and this was satisfactorily afforded them by means of the through land line with the repeating apparatus at Long Point and at Mutton Bay of which mention was made last year.

Bersimis-Point aux Outardes cable.—This cable gave out on May 12, 1905, and a boat service for the exchange of messages was at once established pending the result of investigation. The trouble was subsequently found by Mr. N. A. Comeau, agent at Godbout, in the shore end near the landing at Point aux Outardes, and the damage was successfully repaired on the 30th of the same month.

General repairs, roadway clearances, &c.—The usual run of general repairs along the line was done in the course of the past season by the several regular repairers or line inspectors with local assistance in their respective sections.

New offices and office changes.—At Sheldrake, Miss A. LeBerge was succeeded by her sister, Mrs. Alphonse Girard as agent-operator, December 1, 1904.

At Egg Island, the establishment of an office was moved for and provision was made at the last session for the requisite cable to connect with the line on the mainland. (Note.—When the ss. *Tyrian* was in the River St. Lawrence this autumn, a cable stretch of one and a half knots was laid to Egg Island, October 2, 1905, and under the foremanship of F. Gallienne, a wire was strung from the landing place to the telegraph office at Penticost, a distance of nine miles and the branch line thus formed was put in operation on October 27.)

At Moisie East, the accommodation office for Messrs. Holliday Bros., was closed on August 1, 1904, and re-opened on April 3, 1905.

At Coxipi, the office and repair station was closed on June 14, 1904, the former agent having gone away. Arrangements are in hand for the opening of a similar agency at Shicataca, a short distance east of Coxipi.

At Blanc Sablon, the office was closed for the winter, and reopened on May 7, 1905.

At Clarke City, the office was closed for the winter, November 10, 1905, and reopened April 15, 1905.

At Baie des Ha, an office was opened on June 14, 1904, with Mrs. Adeline Monger as agent-operator and Jos. Monger as local lineman.

At Betchouan, upon the resignation of the former agent, the office was transferred to Jos. Picard, as agent and local lineman on July 15, 1904.

Belle Isle cable.—The condition of this cable and the wireless telegraph service between Chateau Bay and Belle Isle as mentioned in the last annual report remained unchanged throughout the year. (Note.—An arrangement was made in the autumn with the Marconi Company, whereby their stations at Belle Isle and Point Amour in connection with the Department of Marine and Fisheries, are to be kept in operation through the winter and incidentally the office at Chateau Bay has been temporarily closed, the agent operator, Mr. J. Maloney having been for the interval transferred to the station at Point Amour).

Grosse Isle quarantine line.—On December 28, 1904, the cable between Ange Gardien and St. Pierre gave out and it was found practicable to run a temporary line across the ice, this was done and on January 11, communication was restored and kept up through the winter. There was considerable trouble of an intermittent character in the several cables of this system in the spring (1905), due to damage by the action of moving ice. They were got at as early as practicable and put in repair by Mr. L. Roberge, of Quebec, who had on several previous occasions performed similar service.

Wireless telegraph alternative.—In consequence of the annually recurring damage and interruption to the cables of the quarantine system, it has been considered advisable to turn the method of wireless telegraphy to account in this locality as an alter-

native to the land line and cable circuit and provision was made at the last session for the establishment of two stations for this purpose. Arrangements have since been made with the Marconi Company at Montreal to the end in view and the work of installation, &c., is now in hand.

ONTARIO.

Pelee Island line.—The Pelee Island cable which was put in working order on June 16, 1904, as mentioned in last year's report, become interrupted again on December 9 as a consequence of an ice crush in the lake across its track. An attempt was made in the month of May to restore communication, but the trouble proved to be in more than one place and completion of the repair had to be deferred pending the arrival of a length of four knots of cable that was being imported under an appropriation provided last session for the purpose of renewing the worn out sections. (This cable was delivered at Leamington in due course and the work was taken in hand by the District Superintendent, Mr. J. McR. Selkirk, who reported a successful repair on October 13, 1905, since when the line has been in satisfactory operation).

Renewal of telephone apparatus.—With a view to effecting a general improvement in the operation of the Pelee Island system, all of the offices were equipped in the summer of 1904, with the Standard long distance apparatus of the Bell Telephone Company, the installation was completed by the District Superintendent, Mr. J. McR. Selkirk, on November 16, when he reported the whole in excellent working order.

New Offices and Office Changes.

At South Dock, the telephone agency was in August, 1904, returned from Mr. F. W. Ferguson to its original location and has since been in charge of Mrs. F. B. McCormick.

At McIntyres Corners, the telephone station was discontinued in August, 1904. The agent in charge not desiring to continue it any longer.

At Bairds, about midway between Leamington and the lake, an office was established November 2, 1904 ; and

At Tiddens, about midway of Point Pelee, an accommodation office was afforded by the transfer thereto of the apparatus formerly located at the club-house near by. This change was made in April, 1905.

NORTH-WEST.

General inspector.—As in the cases of the lines in the maritime provinces and of the North Shore St. Lawrence system, a general inspectorship, to which Mr. J. S. Macdonald, formerly district superintendent has been appointed, was created in May last (1905) for the lines in the North-west (Assiniboia, Saskatchewan and Alberta) and all below Ashcroft in south British Columbia including Vancouver island.

District superintendency.—The vacancy occasioned by the above appointment has been filled by the transference to Qu'Appelle of Mr. R. C. Macdonald, formerly of the staff at Dawson, Y.T. (Mr. R. C. Macdonald's appointment as district superintendent dates from December 1, 1905.)

Construction of new lines.—In the course of the past season, connection was made with Whitford by the construction of a telephone line (seven miles) to Andrew which is reached by a loop off the main line at Victoria as mentioned in last year's report. The telephone at Whitford was placed in the post office, July, 1905.

Morinville-Legal.—The locally owned line from Edmonton to Morinville, that was aided by the government at the time of its construction several years ago, was in the course of the past year extended twelve miles to St. Emile of Legal, the government had contributed the line wire, &c., for this extension in 1901, but action was

deferred by the interested residents and this year, to carry out the work, an expenditure to the extent of $355 was met by the department (November, December, 1904).

Renewals of poles.—In the course of the season some supplies of poles were arranged for under an appropriation made for the purpose last session and laid down where most convenient for distribution along the lines. The result of the inspection made by the district superintendent, as mentioned in last year's report, was the finding that the poles needed renewal only at scattered places, the total numbers called for being 1,450 for the Qu'Appelle-Edmonton line and 500 for the Moosejaw-Wood Mountain section. The most of these poles were placed in position in the course of the past season and the lines are considered to be in good condition for some time to come.

Office buildings.—The buildings mentioned in last year's report as being called for in the absence of any obtainable accommodation at Humboldt, Willow Bunch, and Athabaska Landing, were provided for in last year's estimates and are being completed. The one at Athabaska Landing is to furnish room for post office as well.

Banff Park telephone system.—Under an appropriation provided last year, this system was thoroughly overhauled and thirteen (13) sets of long distance bridging Bell telephone apparatus were installed in the course of the month of June, 1905, with very satisfactory results and the whole has since been in good and reliable working order.

Shifting of line to highway.—The shifting of the telegraph line from off the farm lands to the recently laid out roadway in the vicinity of Moosejaw, in the Wood-Mountain-Moosejaw section as mentioned in last year's report, has been partly done; and under an appropriation provided for the purpose last session, a like action is being taken with the line between Fort Saskatchewan and Star, in the Qu'Appelle-Edmonton division.

New Offices and Office Changes.

At Whitford, a telephone connection with the telegraph office at Andrew was established in the post office by a line of seven miles constructed in June and July, 1905.

At Victoria, Mrs. Gordon was appointed agent from February 1, 1905, as successor to Mr. J. C. Gordon, deceased.

Appointments and Transfers of Linemen.

At Moosejaw, H. Sykes, former lineman resigned from regular duty as repairer but continues his connection with the service in charge of the main battery and for local line work on occasion in the neighbourhood of Moosejaw. On November 1, 1905, F. Brown, at Wood Mountain, was appointed general repairer for the whole line, Moose-jaw to Wood Mountain and Willow Bunch.

At Bresaylor, Geo. Donovan was appointed lineman and took duty from March 8, 1905.

At Andrew, C. Norn was appointed lineman commencing March 16, 1905. This appointment was called for in consequence of the decease of Mr. J. C. Gordon, late agent and lineman at Victoria.

Old telephone line between Fort McLeod and Lethbridge, (29 miles).—In consequence of this line having for a long time been out of use and fallen into decay, the district being covered by extensions of the lines of the local telephone companies it was found advisable to remove what remained of it as in its broken down condition it was dangerous to cattle and otherwise in the way. Accordingly in the spring of 1905, the wire and insulators were collected and bids were invited by posters in the local post offices for the whole of the poles left standing, the highest bid $50, from Mr. J. V. Thelin, of Orton, was accepted by the Department and the transaction was completed in June, 1905.

BRITISH COLUMBIA.

General inspector.—The appointment of a general inspector for the lines south of Ashcroft has been noted in connection with the northwest lines heretofore dealt with.

District superintendency.—The appointment of Mr. C. S. Stevens, of Kamloops, formerly agent for the Kamloops-Nicola line, as superintendent of this line and its later extension to Penticton as elsewhere mentioned, was made dating from June 1, 1905.

CONSTRUCTION OF NEW LINES.

Lower Nicola to Penticton.—Under an appropriation made for the purpose at the session of 1904, the Kamloops-Nicola line was extended by day labour with Mr. Wm. Henderson, Superintendent at Victoria in charge from Lower Nicola to Penticton via Princeton and Fairview to Penticton, a distance of 168 miles. The poles used in the construction were of the most durable kinds of wood to be had along the route, and where found practicable in timbered sections the standing trees were utilized for supporting the wire, this latter is of No. 6 galvanized iron with insulators of white porcelain. This line was completed in January, 1905, with telephone stations established at the chief objective points as mentioned in the tabular list in the appendix to this report, and at the last session a further appropriation was provided for the equipment of several additional stations and the establishment of local exchanges at Lower Nicola and at Hedley, the number of applications for connections at these places being too great for accommodation together on the main line. (These arrangements were carried to completion in the course of the autumn just past 1905.)

Vernon-Kelowna.—Under a special appropriation provided at the session of 1904 a line was constructed between these points, a distance of 35 miles by day labour in charge of Superintendent Wm. Henderson with the assistance of Mr. R. Swift, of Vernon, and was completed in February, 1905. Arrangements were made subsequently for its being operated both as a telephone and telegraph line as calculated to best serve the local requirements. Connection is made with the C. P. R. Telegraph system at Vernon. A list of the agencies, &c., is given in the appendix to this report. Cedar poles, obtained from the Columbia River Lumber Company at Knolt, near Vernon, were used in the construction of this line and the wire is No. 8 galvanized iron, of which there happened to be a sufficient quantity on hand at Golden since the time of construction of the Golden-Windermere section.

A general inspection of the above lines and examination of the routes for some further extensions that have been applied for in the same district, was made in the course of the spring of 1905, by Mr. J. E. Gobeil, who has since been appointed to a position in the Yukon division as elsewhere noted, and a very comprehensive report covering the whole was communicated by him to the Department under date April 10, 1905.

Kelowna-Penticton.—The construction of a line to fill in the gap, a distance of 45 miles, via Peachland with a stretch of 1½ miles of cable across a waterway near Vernon was provided for at the last session. Arrangements were made by the local superintendent, Mr. C. S. Stevens, at Kamloops, for the requisite supply of poles of the best wood obtainable along the route and orders have been placed for the requisite wire and cable which will be delivered in time for the resuming of the work early next spring.

GENERAL REPAIRS, RENEWALS OF POLES, ETC.

Kamloops-Nicola section.—Pursuant to what was stated in last year's report an appropriation was made for the overhauling of the pole line of this section and in the course of the past season the work of re-setting such of the poles as are yet service-

able, and the putting in of new poles, called for, was performed under the immediate direction of the local superintendent.

Golden-Windermere line.—Nothing beyond ordinary repairs was called for during the past year and this was performed by the regular lineman with local assistance.

For the more satisfactory working of this line which is operated both as a telephone and telegraph line, the latter by connection with the Canadian Pacific Telegraph system at Golden, there was provided at that office in the course of the past season, a special sound proof cabinet with a long distance telephone, the office being too public for the free use of the instrument without this convenience.

At Golden.—Mr. R. N. Young, formerly joint agent for the Canadian Pacific Railway and government lines retired, and was succeeded by Mr. W. A. Decow, December 1, 1904.

Lines on Vancouver Island.—In the summer of 1904, an inspection of the Comox, Alberni and Clayoquot lines was made by Mr. J. G. Brown, of the superintendent's office at Victoria, and the whole found to be in good and reliable condition. Such repairs as have since been called for, have been made by the regular linemen in their respective sections.

At Uchucklesit, ten miles from the Franklin Creek cable crossing, the lineman for the Franklin Creek-Pipestem Inlet section has been stationed and at the office located there, connection was made in March last (1905) by telephone with the Nahmint Mining Company's premises for the convenient handling of messages. A rent of $2.50 per month is paid by the company for this connection.

Victoria-Cape Beale line.—The conditions of maintenance and operation continue unchanged. No special general repairs have been called for and the line is kept up as continuously as is practicable by the regular linemen in their respective sections; at times of interruption any messages that are in hand are passed round by the Canadian Pacific lines via Victoria or Cape Beale and Bamfield Creek as the case may be.

At Port Renfrew, J. W. Williams succeeded W. G. H. Ellison as lineman on May 1, 1905.

At Clo-oose, lineman O. Rosander left the service on May 30, 1905, and was succeeded by R. S. Daykin, of Carmanah, temporarily appointed to the position.

At Jordon River office, a telephone line with five stations was connected in June, 1905, for the accommodation of several firms in that neighbourhood ; and

At Otter Point office, a like connection was made for a line with one station for the accommodation of four separate firms at Sooke wharf for the same purpose. Lists of these connections are given in a tabular statement at the end of this report.

Salt Spring Island line.—Under a special appropriation obtained for the purpose at the last session, a length of 1½ knots of a suitable type of cable was imported for the restoration of the connection across Sanson Narrows which had been interrupted since July 23, 1904, as mentioned in last year's report. (This new length of cable was duly delivered and was put in position as early as practicable after arrival and communication between all points was restored on August 15, 1905.)

YUKON.

(This division includes the Ashcroft-Quesnelle line and branches).

General inspector.—As in the cases of the lines in the Maritime Provinces, North Shore St. Lawrence system, and the North-west and British Columbia lines, a general inspectorship for the Yukon system was provided for by the appointment on May 9, 1905, of Mr. J. E. Gobeil, formerly connected with the office of the superintendent of construction in the Yukon district. Mr. Gobeil's field of action embraces all of the lines and branches north of Ashcroft.

Main line repairs.—Throughout the year no other line work has been called for beyond what was attended to by the regular staff.

Such staff changes, &c., as have been made since the list of offices accompanying the last anual report was compiled, are noted in the revised list, or tabular statement, in the appendix hereto.

Branch line repairs.—The branch lines from Quesnelle to Barkerville, sixty-one miles ; and Ashcroft to Lillooet, sixty-two miles ; having been found to need some general overhauling and resetting of poles as mentioned in last year's report, provision was made for this purpose at the session of 1904, and supplemented for 1905, and these branches have been put in good and reliable order.

New Offices and Office Changes.

At Cache Creek, four miles from Ashcroft, the commission office that was opened in December, 1903, as mentioned in last year's report, was discontinued in May, 1905, owing to the former agent having gone away

At Bonapart, three and a half miles from Cache Creek, an office taking the place of the former was opened June 23, 1905, with Mr. D. O'Hara in charge.

At Pavillion, on the Ashcroft-Lillooet branch, the commission office, formerly in charge of Mr. R. Cumming was, owing to the latter's going away in March, 1905, transferred and placed in charge of Mrs. Bryson, at The Grange, in the same neighbourhood.

At Forty Mile, near the northern boundary, the purchase was made in July, 1904, of the building in which the telegraph office is located and which it was found advisable to acquire from the owner, Mr. W. T. O'Brien, for the purpose of the service.

Supplementary Report.—The following comprehensive report covering the operation of the Yukon system during the past year is to hand from the acting superintendent :—

VANCOUVER, B.C., Dec. 27, 1905.

D. H. KEELEY, ESQ.,
General Superintendent,
Government Telegraph Service,
Ottawa, Ont.

SIR,—I respectfully submit to you herewith my report of the working of the Yukon Telegraph system for the fiscal year ending June 30, 1905.

The revenue and expenditure for the past fiscal year for the main line and branches is as follows :—

	Expenditure.	Revenue.	Deficit.
	$ cts.	$ cts.	$ cts.
Main Line	185,085 02	111,804 02	73,281 00
Port Simpson	16,342 92	1,820 22	14,522 70
Barkerville	1,575 00	897 09	677 91
Horse Fly	1,821 47	823 71	997 76
Lillooet	1,708 02	529 00	1,179 02
	206,532 43	115,874 04	90,658 39

Total expenditure	$ 206,532 43
Total revenue	115,874 04
Deficit	$ 90,658 39

Comparative statement of revenue and expenditure:—

—	$ cts.	—	$ cts.
1903-1904—Revenue	126,991 97	Expenditure	176,790 15
1904-1905— "	115,874 04	"	206,532 43
Decreased revenue	11,117 93	Increased expenditure	29,742 28

Volume of business :

1903-4.	Number.	Amount.	1904-5.	Number.	Amount.
		$ cts.			$ cts.
Messages sent	47,982	119,238 39	Messages sent	47,730	109,324 34
" received	48,372		" received	49,966	
Press	775,358	7,753 58	Press	654,970	6,549 70
		126,991 97			115,874 04

As indicated in my report of November 1, 1904, the completion of the United States cable to Sitka and Valdez in October, 1904, has seriously affected the revenue, as since then, practically all the Alaskan business, which was transferred to Yukon lines at Boundary has been diverted to the cable lines at Valdez. The revenue from White Horse was also seriously affected by the completion of the United States cable, as all Juneau and Skagway business for outside points was, previous to the completion of cable, transferred to our lines at White Horse.

The decrease in revenue at Ashcroft, the transfer point with C.P.R. telegraphs, is accounted for by the decrease in Alaskan business transferred at Boundary, Dawson and White Horse.

In order to show the actual decrease in the earnings of the lines for 1904-05, the following will explain fully :—

The receipts for 1903-04 were	$126,991 97
" " " 1904-05 "	115,874 04
Showing a decrease in receipts of	$ 11,117 93

The receipts for 1903-04, $126,991.97, are made up of :—

Earnings	$126,520 49
Outstanding accounts paid during year	471 15
Paid on account error statements	0 33
	$126,991 97

The amount of $471.15 paid in on account of outstanding accounts is determined by $1,179.97 of outstanding 1902-03 carried forward to 1903-04 less amount of outstanding 1903-04; $708.82 carried into 1904-05, making $471.15, as above.

The receipts for 1904-05, $115,874.04, are made up of :—

Earnings	$115,783 49
Outstanding accounts paid during year	90 55
	$115,874 04

The amount of $90.55 paid in on account of outstandings is determined by $708.82 outstanding of 1903-04 carried to 1904-05 less outstandings of 1904-05, $618.27 carried to 1905-06, making $90.55, as above.

The difference in revenue, $11,117.93, is made up of decrease in earnings, $10,737.00, and difference between amounts paid in on account of outstandings and error statements of the respective years of $380.93, thus making the decrease in receipts, $11,117.93.

The following offices show the principal increases and decreases in earnings :—

DECREASES.		
Ashcroft		$ 6,931 31
Quesnelle		142 39
Atlin		850 39
Dawson		2,358 01
Forty Mile		551 19
Selkirk		142 04
White Horse		5,780 26
Yukon Crossing		241 08
Other offices		608 06
		$17,604 73
INCREASES.		
Bullion		$ 190 63
Hazelton		242 08
Telegraph Creek		132 17
Lorne Creek		113 19
Aberdeen		301 70
Port Simpson		322 70
Boundary		5,114 08
Other offices		451 57
		$6,867 73
Decrease in earnings		$17,604 73
Less increase		6,867 73
Net decrease		$10,737 00

The increase in the Boundary revenue was all in the first part of the year previous to the completion of the United States cable, as after that date the receipts fell very far below the average, and the prospects are that the decrease will be more marked for the current year 1905-06, as the Alaskan business for the first four months 1905-06 swelled the revenue to a large extent, and this year there is nothing to depend upon for revenue except business originating at and destined for points on Yukon lines.

Expenditure		$206,532 43
Made up as follows :—		
Salaries	$123,204 79	
Provisions and supplies	28,785 10	
Freight, packing and transportation charges	29,075 79	
Sundry expenses, rent, fuel, light, board of employees, repairs to trails, &c.	14,686 92	
Repair to main line	4,818 55	
" " Barkerville	758 00	
" " Lillooet	853 39	
New cabins	655 68	
Old accounts 1901-02	3,387 61	
Burial expenses	82 60	
Inspection account	224 00	
		$206,532 43

In explanation of the expenditure of 1904-05, of $206,532.43. This expenditure includes liabilities incurred previous to 1903-04, amounting to $3,387.61 and 1903-04 accounts unpaid at June 30, 1904, amounting to $25,061.05, making a total of $28,448.66 or a net expenditure for 1904-05, of $178,083.77.

The difference between the amount of liabilities incurred in operating the line 1903-04, $195,770.55, and the actual expenditure for that year, $176,790.15, viz., $18,980.40 added to the amount of 1902-03 accounts paid out of the appropriation for 1903-1904, $6,080.65 or a total of $25,061.05 explains why accounts of 1903-04 to that amount remained unpaid at June 30, 1904.

The service on the line has been fairly well maintained considering the exceptional conditions under which it is operated, such as length of line, nature of country through which the line passes, sparseness of population, &c. The greatest trouble is experienced between First Cabin, north of Hazelton, and Echo Lake, as the line at these points comes within the coast range, and is subject to very heavy falls of soft snow and sleet; in the late fall and early part of the winter, north of Echo Lake, the snow fall is great but of dry nature that does not cause any great amount of wire trouble. South of First Cabin, the line passes through a fairly open country where the snow fall is comparatively light, and very little trouble is experienced in keeping communication open south of First Cabin.

The whole line from Quesnelle to northern boundary, has been thoroughly gone over and all temporary repairs made during the winter have been made permanent, decayed poles renewed and everything put in good shape for the winter.

Owing to the unsatisfactory manner in which the business at White Horse was performed, Mr. A. B. Clegg, district superintendent, was suspended in June last; since then, his duties have been performed by Mr. Gilchen, pending action of the department on my report of August 25th last.

The services of several operators and linemen have been dispensed with during the past year for neglect of duty, but with these exceptions the duties devolving upon the employees of the line have been performed in a satisfactory manner.

Your obedient servant,

(Sgd.) J. Y. ROCHESTER.

TARIFF CHANGES.

Press rate.—In April, 1905, the former rate of one cent per word with minimum charge of $1 for the whole line was modified as hereunder :—

On the Yukon line 1 cent per word, minimum charge $1. This applies to the whole line. Exception, Barkerville—Ashcroft section (local) minimum charge, 50 cents.

TELEGRAPH SERVICE GENERALLY.

Inspectorships.—As noted elsewhere in this report under the several divisional headings, four general inspectors have been appointed with a view to enhancing the efficiency and usefulness of the service.

Cable ship.—The ss. *Tyrian* in command of Captain T. O'Leary, with Mr. R. G. Zwicker, chief engineer ; Mr. W. McConnell, pilot ; and the other officers and members of the crew for most part the same as in 1903 and last year, was this year, 1905, not available for service until the month of September in consequence of some extensive repairs and changes of her machinery, and arrangements for accommodation for the officers and crew, that could not be put in hand early in the season in the absence of the requisite funds for the purpose. As early as practicable, however, the

needful work was provided for and the ship was got ready for sea. The work performed, in the interval, until the season was too far advanced for its continuance will be found noted under the several divisional headings. This year as last, Mr. A. B. McDonald, of Meat Cove, Cape Breton, acted in the capacity of electrician in connection with the work of cable laying and repairing that was in hand.

NOTE.—It is regrettable to have to mention the sad circumstance of an accident happening in boiler room of the *Tyrian* when about two miles off Meat Cove, on October 28, 1905, in the course of repairs to the Magdalen Islands cable, whereby through the blowing out of a safety plug two of the firemen were fatally injured by the escaping gas and steam. One of the unfortunate men, P. Purcell, died on the way to Sydney, for which port the ship was headed as soon as possible after temporary repairs were made by the engineers ; and the other, P. McGrath, passed away shortly after the ship's arrival there. The bodies were subsequently conveyed by railway to Halifax, in charge of a member of the ship's company and the funeral arrangement were seen to by the resident engineer on behalf of the department.

After some further examination and repairs, the vessel was adjudged to be in a safe condition by the several officers concerned, and on November 8, an authorization was given for her again proceeding with the work that was in hand, and on the 16th the cable was repaired and connection with the Magdalen Islands restored. The ship then returned to Halifax to go into winter quarters.

Telegraph Systems of the Dominion.—As a matter of general interest the latest figures to hand showing the extent of telegraph lines in operation in the Dominion are given hereunder :—

Canada.	Length of lines in Miles.			Lengths of Conductors in Miles.			Number of offices.
	Aerial.	Underground.	Total.	Aerial.	Underground.	Total.	
Great North Western Telegraph Co.	18,286	.....	18,286	35,721	.....	35,721	1,455
Canadian Pacific Telegraphs	10,292	2	10,294	50,952	57	51,009	1,150
Western Union Telegraph Co.	2,610	28	2,638	9,805	44	9,849	219
Government Telegraph Service	6,590	.....	6,590	6,590	.....	6,590	337

REVENUE AND EXPENDITURE.

The revenue and expenditure for each of the Government lines in the several districts hereinbefore mentioned are given in the following table :—

1904-05.	Expenditure.	Revenue.	Remarks.
	$ cts.	$ cts.	
Lower St. Lawrence and Maritime Provinces :—			
Anticosti lines	5,083 47	1,145 17	
Bay of Fundy	2,107 31	882 55	
Cape Ray	250 00		
Escuminac	755 67	148 32	
Magdalen Islands	3,073 34	1,179 11	
Father Point Agency	500 00		
Cape Breton lines	10,254 45	2,754 28	
North Shore (E. B.)	15,333 50	4,086 06	
" (W. B.)	8,723 17	1,764 01	
Quarantine system	4,158 04	344 13	
Isle aux Coudres	150 00		
Cable ship *Tyrian* :—			
Maintenance and renewal of plant	37,572 56		
Subsidies, stationery, line and office material and contingencies	12,162 89		
Total for Lower St. Lawrence, &c.	100,124 40	12,304 63	
Ontario :—			
Pelee Island line	3,325 34	137 25	
North-west Territories lines	30,703 68	5,976 91	
British Columbia :—			
Alberni-Cape Beale	774 00	10 59	
Alberni-Clayoquot	3,134 34	391 14	
Golden-Windermere	3,186 62	700 13	
Kamloops-Nicola	861 03	1,400 40	Signal Service messages, Meteorological Service messages and reports, and Fisheries bulletins are handled free of tolls.
Nicola-Penticton	192 20		
Nanaimo-Comox	3,443 38	2,307 93	
Vancouver-Salt Spring	174 46	4 77	
Vernon-Kilowna	292 15	343 19	
Victoria-Cape Beale	4,826 78	305 32	
B. C. service generally	1,354 62		
Yukon :—			
Ashcroft-Dawson	229,351 05	115,876 18	
Telegraph service generally	2,263 23		
Total	384,007 28	139,758 44	

DEPARTMENTAL TELEPHONE SERVICE.

At the end of June, 1905, the telephone connections with the central offices of the Bell Telephone Company at Ottawa, listed as chargeable to the special appropriation, numbered 258, the annual charge for which amounted to $10,299; and at the end of the present month (December, 1905) numbered 266, amounting to $10,680. The connections are distributed amongst the several departments as hereunder :—

Department.	Offices.	Residences.	Annual charge.
			$ cts.
Agriculture	7	4	435 00
Auditor General	3	1	150 00
Census Branch	1		50 00
Customs	5	2	290 00
Dominion Police	6	3	363 00
Exchequer Court	1	2	105 00
Finance	6	2	283 00
Governor General (including private system)	3	2	362 75
House of Commons	14	3	687 50
Indian Affairs	4	1	190 00
Inland Revenue	4	5	408 00
Interior (including line to Observatory)	26	3	1,165 00
Geological Survey	2	1	110 00
Justice	6	10	628 00
Labour Department	1		50 00
Mounted Police	3	1	145 00
Marine and Fisheries	10	5	563 00
Militia and Defence	10	11	797 00
Parliamentary Library	1	2	120 00
Privy Council	3	5	335 00
Post Office Department (including Ottawa River Works)	5	5	385 00
Public Works (including Ottawa River Works)	32	15	1,948 00
Printing and Stationery	3	2	190 00
Railways and Canals	3	5	305 00
Secretary of State	3	2	180 00
Senate	5	1	215 00
Trade and Commerce	3	3	220 00
	170	96	10,680 25

APPENDED TABLES.

The usual tabular statements of the lines and offices, staff, &c., of the telegraph service, following hereupon, will be found to contain whatever additions or changes have been made up to June 30, 1905.

D. H. KEELEY,
General Superintendent.

OTTAWA, December 28, 1905.

DOMINION TELEGRAPH SERVICE.

NEWFOUNDLAND TELEGRAPH SERVICE.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Memo.
		Miles.	$ cts.	
1	Port au Basque	0	50 00 on commission	N.B.—The commission is 25 per cent upon all business to and from the office; said commission guaranteed not to be less than at the rate of $50 per annum.
2	Cape Ray Lighthouse	14	50 00 "	
	Totals	14	100 00	

N.B.—The above short line is constructed in connection with the Signal Service, and connects at Port au Basque with the land line system of the Anglo-American Telegraph Company.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

ANTICOSTI TELEGRAPH SYSTEM.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
1	Fox Bay	0	Geo. Cabot	300 00	May 13, 1900	Increased from $200 since December, 1902.
2	Heath Point	23	A. Tremblay	50 00 on commission.	Aug. 1, 1900	For local agency.
				200 00 "	Nov. 1, 1902	For cable repeating station.
3	South Point Lighthouse	32½	E. Leprise	50 00 "	July 1, 1903	
4	Shallop Creek	17½	B. Bradley	240 00 "	" 7, 1881	
5	Salt Lake	52½	A. Allard, agt. repairer	360 00 "	June 1, 1903	Plus $1 per day when on duty as general repairer.
6	South-west Pt. Lighthouse	15	A. Z. Lemieux	420 00 "	" 1, 1901	Increase from $300 since May, 1903.
....	Jupiter River	7		50 00 "		
....	Otter River	17½		50 00 "		
....	Bescie River	22		50 00 "		
....	Cape Eagle (Ellis Bay)	10		50 00 "		
7	West Point Lighthouse	9	A. Malouin, dist. supt.	344 00 per annum	Aug. 1, 1900	
			" operator	50 00 "	" 10, 1881	
8	English Bay	3	F. Cabot	120 00 and commission	July 1, 1882	
....	Mechastic Bay (cable landing)	14½				
	Totals	223¼		2,334 00		

South-west Point connects with l'Anse à Fougère, Gaspé, by cable 44¼ knots; and from Mechastic Bay connection is made with Long Point of Mingan by cable 21 knots.

0	L'Anse à Fougère		Thos. Dupuis	17 00		Special allowance for the cable terminus. A testing station only*.
1	Gaspé Basin	28	J. J. Annett	540 00	Oct. 16, 1881	Transfer office. Connection with G.N.W. telegraph system. The salary was $420 per year previous to December 1, 1903.
		28		557 00		

* This payment was made to Mr. N. Bernier prior to October, 1903.

MAGDALEN ISLANDS SYSTEM.

Magdalen Islands Section.

1	Amherst	0	Miss J. Shea	50 00	or commission	Oct.	1, 1882	The commission is 25 per cent on all business to and from the office in each instance; said commission guaranteed to be not less than at the rate of $50 per annum.
2	Amherst Lighthouse	9	Wm. Cormier	50 00	"	June	11, 1881	
3	Etang du Nord village	15	I.G. Binet, gen. repairer	400 00	"	Dec.	1, 1900	Plus $1 per day when absent on duty.
			Mrs. A. Binet	50 00	"	"	1, 1881	
4	Etang du Nord Lighthouse	1	N. Arseneault	50 00	"	Sept.	1, 1891	Two-wire loop line.
5	Grindstone Island	5	W. Leslie	Commission 25 p.c.		May	20, 1897	
6	Grindstone West		A. LeBourdais, dissupt	720 00		Aug.	17, 1880	Plus $1 per day when absent on duty. The salary was $600 per annum prior to May 1, 1904.
			Mrs. LeBourdais, oper.	50 00		Sept.	15, 1893	
7	House Harbour (½ knot cable)*	3	Camille Delaney	50 00	or commission	June	1, 1903	
8	Wolfe Island	28½						
9	Grosse Isle	11	N. Clark	360 00	or commission	June	1, 1888	For repeating station. Prior to Dec. 1, '02 the allowance was $200 and commission for local agency.
			J. Quinn	50 00	"	Dec.	1, 1902	
10	Grand Entry	11	Mrs. F. Atkins	50 00	"	Feb.	18, 1882	
11	*Point Basse 2 Wire loop from House Harbour	4	H. Arseneau	50 00	"	Aug.	1, 1902	
12	South Beach--2 Wire loop	3	E. Chevrier	50 00	"	July	1, 1905	
13	Bryon Island	1	W. Dingwell	150 00		Jan.	1, 1903	Two-wire loop line from terminal hut for Grosse Isle and Anticosti cables.
		91½		2,130 00				

Grosse Isle connects at Old Harry with Meat Cove, C.B., by cable 55 knots; and connects with Bryon Island by cable 11 knots; thence to Heath Point Anticosti 93 knots.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CAPE BRETON SECTION.

No.	Stations.	Intermediate Distance	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Mile		$ cts.		
1	Meat Cove (cable station)		A. B. McDonald, Circuit Manager	720 00	Nov. 7, 1880.	The commission is 25 p.c. on all business to and from the office in each instance; said commission guaranteed to be not less than at the rate of $50 per annum.
2	Aspy Bay	10½	I. Y. Nichols	50 00 or commission	July 1, 1894.	
3	Dingwall (loop line)	3¾ / 2¾	Murdock McLeod	50 00 "	Aug. 31, 1898.	The loop line formerly running to White Point has been withdrawn.
4	Cape North (Inland)	3	John McDonald	50 00 "	May 13, 1904.	
5	Neil's Harbour (half-way house loop line)	11 / 1¾	M. McLeod	50 00 "	April 1, 1887.	
6	Ingonish North Bay	9	Mrs. S. S. Burke	50 00 "	June 1, 1884.	Former Agent J. M. Burke deceased.
7	South Ingonish	10½	Geo. Brewer	50 00 "	May 7, 1899.	
8	Ingonish Ferry	2	Anna McLeod	50 00 "	Oct. 1, 1903.	
9	French River ¼ knot cable	21	John McDonald	50 00 "	April 1, 1899.	
10	Indian Brook	5	Annie McDonald	50 00 "	Aug. 1, 1901	
11	Murray (loop line)	14 / 10	R. B. Matheson	25 p. c. R & C's	Jan. 29, 1902.	25 per cent commission only.
12	Englishtown ¼ knot cable	7	W. Bingham	120 00 and commiss.	July 19, 1882.	Switching point for Baddeck line.
13	South Gut, St. Ann's (on loop)	5	Rachael Morrison	50 00 "	Sept. 1, 1904.	Closed December 31, 1899.
14	Baddeck (on loop)	13	L. M. Anderson	100 00 "	June 17, 1904	Salary. $120 per year previous to this appointment. Former Agent Mr. A. Anderson.
	Englishtown (back on loop)	18				This loop to Baddeck starts from and returns to Englishtown.
15	Kelley's Cove, N. Campbellton	6	J. S. Burchell	50 00 or commission	July 7, 1904.	
16	Big Bras d'Or ¼ knot cable	2½	Mrs. E. Livingston	100 00 "	Jan. 1, 1889.	Increased from $50 to $100 since Nov. 1, 1904.
17	North Sydney	12½	W. U. Tel. Co	Commis'n only		The commission is 50 p.c. on local business and 25 p.c. on through messages; and covers supervision of line and office accommodation at North Sydney.
	Repairers' Sections.					
	Meat Cove—Sugar Loaf		M. McAskill	80 00	April 1, 1898.	
	Sugar Loaf—Ingonish		Charles Smith	100 00	" 1, 1898.	Increased from $80 since June 1, 1903.
	Ingonish—Englishtown		R. A. McDonald	100 00	" 1, 1898.	
	Englishtown—Baddeck		D. McAulay	60 00	Nov. 1, 1904.	
	" North Sydney		Dan Campbell	100 00	July 14, 1903.	
	Murray—Indian Brook		John Smith	25 00	June 17, 1902.	
	Ingonish		S. S. Burke, gen. repr	420 00	April 1, 1904.	Payment includes horsehire.
	Totals	168¼		2,525 00		

				$ cts.			
	Branch Line.						
0	Big Bras d'Or		Mrs. E. Livingston	100 00	July	1, 1899.	The commission is 25 p.c. of the Govt. line tolls in each instance and is guaranteed to amount to not less than $50 per annumn.
1	Boulardarie Centre	4	Mrs. J. B. McKenzie	50 00 or commission	Oct.	6, 1904.	
2	Ross Ferry	12	Miss Johanna Campbell	50 00 "	"	6, 1904.	
3	Upper Kempt Head	4	Mrs. Murdock McKenzie	50 00 "	"	6, 1904.	
	Totals	20		250 00			

Meat Cove station connects with the Magdalen Islands system by a cable to Old Harry Head, 55 knots, and with St. Paul's Island by a cable of 20 knots. The latter is operated with telephones.

1	St. Paul's Island	3	S. C. Campbell	50 00	Oct.	1, 1890.	Land wire across the Island, Atlantic Cove to Trinity Cove.

MABOU CHETICAMP AND MEAT COVE, C.B., TELEGRAPH SYSTEM

1	Mabou	0	Mrs. M. McDonald	120 00 per annum	April	1, 1887.	The commission is 25 p.c. of the Government line tolls, and is guaranteed to amount to not less than $50 per annum. Where 50 p.c. commission is paid there is no guarantee as to amount.
2	Inverness Town (Broad Cove)	20	Miss Annie McLelland	50 p.c. Cks. & Rts	Mar.	1, 1892.	
3	South-west Margaree	12	J. D. McFarlane	50 00 per annum	Feb.	1, 1898.	
4	Margaree Harbour	5	H. K. McLean	50 p. c. R. & Cks	Oct.	20, 1896.	
5	North-east Margaree (loop line wire)	10	Mrs. J. D. Ross	50 00 or commission	Feb.	1, 1898.	
6	Grand Etang	8	G. Doucet	50 00 "	Sept.	13, 1902.	Closed March 31, 1905.
7	Cheticamp	8	M. Aucoin	50 00 "	Aug.	3, 1905.	
8	Pleasant Bay	27	M. J. McIntosh	50 00 "	Oct.	15, 1903.	
9	Cape St. Lawrence	15	C. Jamieson	50 00 "	Jan.	1, 1904.	
	Meat Cove	4	See Meat Cove Line / D. C. Dawson, D. Supt.	150 00 "	"	1, 1887.	
	Repairer's Sections						
	Mabou—Strathlorne		L. G. McDougall	40 00 per annum	Nov.	3, 1902.	
	Strathlorne—S. W. Margaree		J. D. McFarlane	40 00 "	June	4, 1902.	
	S. W. Margaree Margaree Harbour		Alex. McFarlane, sr.	40 00 "	"	4, 1902.	
	Margaree Harbour Grand Etang		H. K. McLean	25 00 "	"	1, 1903.	
	Cheticamp		Joseph L. Chiasson	40 00 "	"	1, 1905.	
	Cheticamp Barren		Moses Aucoin	40 00 "	May	20, 1903.	
	Barren Pleasant Bay		J. A. McLean	40 00 "	"	20, 1903.	
	Pleasant Bay—Polits Cove		K. Fraser	40 00 "	"	20, 1903.	
	Polits Cove—Halfway Shanty		E. Fraser	30 00 "	"	20, 1903.	
	Halfway Shanty—Meat Cove		R. Fraser	40 00 "	"	20, 1903.	
	General lineman		V. A. McLellan	420 00 "	Mar.	1, 1905.	Salary covers horse hire, &c.
	Totals	109		1,365 00			

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

NORTH SYDNEY—MEAT COVE AND PORT HAWKESBURY SECTION.

Number.	Stations.	Intermediate Distance.	Agents and Operators.	Salary per annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
	Mabou	0				(See Mabou.—Meat Cove section.)
1	Port Hood	10	D. J. McDonald	50 00*	July 1, 1903.	
2	Judique	10	Mrs. McDonald	50 00	" 1, 1904	
3	Craignish	8	J. D. Cameron	50 00	" 1, 1903.	
4	Port Hastings	10	Miss M. McFarlane	50 00	" 1, 1903.	
5	Port Hawkesbury	3¾	Miss E. McDonald	120 00	" 1, 1903.	
6	River Bourgeois	26	Angus Boyd	50 00	" 1, 1903.	
7	St. Peters	6	D. Morrison	100 00	Nov. 1, 1903.	Main battery at St. Peters.
8	Lower Lardoise (½ mile loop)	7¼	Miss Mary D. Finlayson	50 00	June 22, 1905.	
9	Grand River	7	Miss Jessie Finlayson	50 00	" 1, 1903.	
10	Fourchu	26	Miss May Hardy	50 00	" 1, 1903.	
11	Gabarous (3 mile loop)	16	Miss C. Grant	180 00	Jan. 16, 1904.	Repeating office.
12	Louisbourg	14	Wesley Townsend	50 00	Feb. 1, 1904.	
13	Main à Dieu	13	Miss Maud Dickson	50 00	June 1, 1904.	$50 additional to Main à Dieu agency for care of main battery.
	To cable landing	1				
	Cable across channel	1¾				
14	Scatarie Island (Western Light)		E. E. Pope	50 00	Aug. 15, 1904.	
15	" (Eastern Light)	7¼	J. T. Martel	50 00	" 1, 1904.	
	General lineman Port Hawkesbury and Meat Cove Section		Wm. J. Smyth			(See Mabou.—Meat Cove section.)
	Branch.					
	Gabarous		No appointments, only the terminal offices in operation.			This line was opened for business Dec. 11, 1903.
	Junction (wire only, 3 miles)					
	Marion Bridge	35½				
	Perry Lewis					
	Leitche's Creek					
	North Sydney					
	Totals	202½		930 00		

* Or commission. The commission is 25 per cent of the Government line tolls, guaranteed at rate of $50 per annum.

North Sydney transfer office, connection with W. U. Telegraph system.

NOVA SCOTIA TELEGRAPH SYSTEM.

Cape Sable Section.

1	Barrington	0					This line has been leased to the Barrington Telephone Company from August 12, 1897. The lease is terminable at any time.
2	Newellton (including 1½ knots cable)	11					
3	Cape Sable Island light-house (including ¼ mile cable)	6¾					
	Totals	17¾					

East Coast Section.

N.B.—In connection with the Signal Service a land line, 208 miles in length, was erected in 1881, between Canso and Halifax, for a bonus of $16,000, and is maintained and operated by the Western Union Telegraph Company, without further cost to the Government.

BAY OF FUNDY, N.B., TELEGRAPH SYSTEM.

Grand Manan Section.

	Long Eddy Cable Hut to.						
1	Flagg's Cove	3	Mrs. C. C. Seely (D.Su.)	540 00	Nov.	18, 1880	*The commission is 25 p.c. on all business to and from the office in each instance; and commission guaranteed not to be less than at the rate of $50 per annum. When 50 p.c. commission is paid there is no guarantee as to amount.
	"		Miss V. A. McFarlane	50 00 or commission	Oct.	1, 1903	
	"		A. Gilmour, repairer	60 00	Dec.	1, 1894	
2	Castalia	2½	G. E. Dalzell	Commission 25 p.c *	June	1, 1898	
3	Woodward's Cove	3½	W. A. Fraser	" 50 p.c.	Feb.	28, 1893	
4	Grand Harbour	2	J. L. Newton	75 00 or commission	April	1, 1887	$25 per annum is included for repeating Whitehead branch.
5	Seal Cove	4½	J. A. Ingersoll	50 00 "	Sept.	22, 1899	
6	Southern Head Lighthouse	5½	O. McLaughlin	Commission 25 p.c.	April	24, 1897	Southern head office is now operated by telephone from Seal Cove.
	Branch Line.						
	Grand Harbour	0					
7	Cheney's Island (½ knot cable)	4¾	W. Cheney	" 25 p.c.	Feb.	1, 1891	
8	Whitehead Island (¾ knot cable)	1½	Mrs. W. Cassaboom	50 00 or commission	"	1, 1903	
	Cable, Long Eddy to Liberty Cove	7¼					
	Liberty Cove Cable Hut to.						
9	Welchpool	7½	G. E. Mitchell	210 00 and commission.	May	1, 1905	
	Cable across channel	1¾					
10	Eastport, Maine, U.S.A.	½	J. Cushing	200 00	Dec.	26, 1881	
	Totals	44¼		1,035 00			

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHATHAM-ESCUMINAC, N. B., TELEGRAPH SYSTEM.

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
1	Chatham	0	Great Northwestern Telegraph Co.	185 00		This amount is paid for supervision of the line and office accommodation at Chatham.
2	Black Brook	5½	M. McDougall	50 00 or commission	July 1, 1904	The commission is 25 p.c. of the Government line tariff receipts in each instance, and is guaranteed to amount to not less than $50 per annum.
3	Baie du Vin	15	Mrs. M. Williston	50 00 "	Mar. 1, 1885	
4	Lower Hardwicke	6	Mrs. M. Brimmer	50 00 "	Aug. 1, 1891	
5	Escuminac	3⅞	D. Lewis	50 00 "	Sept. 1, 1885	
6	Point Escuminac lighthouse	12	K. R. McLennan	50 00 "	Nov. 1, 1893	$12 per annum allowed for care of main battery at Point Escuminac.
	Totals	42		435 00		

GROSSE ISLE QUARANTINE TELEGRAPH SYSTEM.

1	Quebec	0	Great North-western Telegraph Co.	185 00		This amount is paid for supervision of the line, and covers rent of pole line from Quebec to L'Ange Gardien, for which $35 per annum is charged.
	L'Ange Gardien	13				
	Orleans Island (cable)	⅜				
2	St. Pierre	4½	C. Turcotte	50 00 or commission	Mar. 1, 1885	This commission is 25 p.c. of the Government line tariff in each instance, and guaranteed to amount to not less than $50 per annum.
3	Ste. Petronille	3¼	M. Plante	50 00 "	April 7, 1896	
4	St. Laurent	6½	M. Gobeil	120 00 and 25 per cent commission	Sept. 15, 1888	
5	St. Jean	7	P. Pouliot	120 00 and 25 per cent commission	July 1, 1888	For local agency.
				480 00 per year	May 1, 1902	Chief operator and repairer.
6	St. François	6¾	O. Lemelin	50 00 or commission	" 15, 1900	
7	Isle Réaux (including 2 knots cable)	3¼				
	Isle Réaux (land line)	2½				
8	Grosse Isle quarantine office (including 2 knots cable)	3½	M. D. Masson	100 00 and 25 per cent commission	May 1, 1902	$4 per month for messenger serv. in summer, and $12 p. annum allowed for care of main batt. at Gr. Isle.
	Quarantine telephone system 2 wire line	1¾				NOTE. The telephone system on Grosse Isle since May, 1893, has comprised 1¾ miles of 2 wire line with 11 connections or stations.
	Totals	52¾		1,155 00		

	Loop Line (2 wires.)							
	St. Jean-Ste. Famille	5½	P. Létourneau	50 00 or commission	April	2, 1904		

CHICOUTIMI AND NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.

Chicoutimi Section.

1	Bay St. Paul		F. Boivin	180 00 per annum.. { 25 p.c. commission	April	1, 1885	Previous to	*The commission on business is 25 per cent of the Government tolls of the line; the amount guaranteed to be not less than $50 per annum.
2	St. Urbain	9	{ A. Boivin	50 00 or commission*	"	1, 1885		
			{ A. Gauthier, repairer	210 00	May	15, 1887		
3	La Galette	37	S. Ouellette	100 00	Aug.	25, 1902		
4	St. Alexis	37½	Mrs. D. Simard	50 00 or commission	Nov.	1, 1899		Plus $25 per year for operating branch line to L'Anse St. Jean.
5	St. Alphonse de Bagotville	3	A. Simard	50 00 "	April	— 1885		
6	Chicoutimi	11½	{ G.N.W. Telegraph C.	25 p.c. commission	Nov.	— 1893		Plus $12 per annum for care of main battery.
			{ J. Fortin, repairer	420 00 per annum.	June	1, 1897		J. Fortin's division includes the branch line to L'Anse St. Jean.
		98		1,060 00				
	Branch Line.							
	St. Alexis	0	Mrs. D. Simard					
7	St. Felix d'Otis	10	Rev. H. Neron	50 00	Nov.	1, 1903		
8	L'Anse St. Jean	30	{ J. Martel, repairer	210 00	May	1, 1904		
			{ R. Martel	50 00	Jan.	1, 1904		
9	Petite Saguenay	8	M. Tremblay	50 00	Sept.	1, 1903		
10	Anse Cheval	6	Jos. Degagné	50 00	Feb.	1, 1905		(This office had been closed since April 30, 1904.)
11	St. Etienne	7						
	St. Catharines Bay	17	G. Boulenne (see North Shore W. B. Line.)					
		78		410 00				
	Totals	176		1,470 00				

MURRAY BAY ST. AGNES SECTION.

	Murray Bay	0	Mrs. F. Vincent				(See Murray Bay, Bersimis section.)
1	St. Agnes	7½	Jos. Gaudreau	50 00	Jan.	1, 1904	
2	Trinity (Guay)	7	Jos. Guay	50 00	Dec.	1, 1903	
		14½		100 00			
	Bay St. Paul	0	F. Boivin				{ (See Bay St. Paul. Chicoutimi section.)
1	Petite River	13	J. Bouchard	50 00	Dec.	1, 1903	{ Payment at Bay St. Paul $25 per year and $12 for battery care, for operation of this branch to Petite River.
		13		50 00			

Connections for these lines with the G. N. W. Telegraph System are made at Chicoutimi, Bay St. Paul and Murray Bay.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHICOUTIMI AND NORTH OF ST. LAWRENCE TELEGRAPH SYSTEM—*Continued.*

CHICOUTIMI SECTION—*Continued.*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
1	St. Charles	0	B. Boucher	50 00	Sept. 1, 1903	
2	St. Ambroise	10	A. Simard	50 00	June. 1, 1905	
3	St. Leonard	7	Geo. Gagnon	50 00	Sept. 1, 1903	
4	Shipshaw, North	6	J. Murdock	50 00	" 1, 1903	
5	Shipshaw	3	Aug. Dufore			
6	St. Anne	8	P. Gauthier	200 00	Aug. 1, 1903	
	Chicoutimi	3	G.N.W.Telegraph Co.			
		37		400 00		
	Branch Line.					
	St. Anne	0	P. Gauthier			(See St. Charles.—Chicoutimi section.)
1	St. Fulgence	9	Rev. Geo. Gagnon	50 00	Jan. 1, 1904	
		9		50 00		
	St. Anne	0	P. Gauthier			
1	Range 9	3	Thos. Simard	50 00	Feb. 1, 1904	
2	Lac Charles	3	J. Bouliane	50 00	Jan. 1, 1904	
3	Lac Clair	9	Albert Dufore	50 00	" 1, 1904	
		15		150 00		

NORTH SHORE (West of Bersimis.)

1	Murray Bay	0	Mrs. E. Vincent	50 00 or commission.	Previous to April 1, 1885	Plus $25 per year, and $12 for battery care for operation of branch to Guay.
2	Cap-à-l'Aigle	4	Mde. Bergeron	50 00 "	June 1, 1905	
3	St. Fidèle	6	Jos. Desbiens	50 00 "	Dec. 1, 1904	
4	Port au Persil	7	A. Brassard	50 00 "	May 1, 1889	
			A. Brassard (repairer.)	210 00 "	June 1, 1897	

5	St. Siméon		4	D. Gaudin	50 00	"	Dec. 1, 1887	
6	Baie des Rochers		12	G. Savard	50 00	"	June 1887	
7	St. Catherines Bay	Br. L.	17	G. Boulenne	100 00	"	Nov. 1886	
8	St. Etienne			E. Boulenne (rep'r.)	210 00	"	Sept. 1, 1899	
9	Tadousac (1½ knot cable)		13	J. E. Caron	50 00	"	Nov. 1, 1888	
10	Sacré Cœur		12½	L. Maltais	50 00	"	Dec. 6, 1901	
	Br. from Tadousac							
11	Bon Desir		10	Mad. E. Gauthier	50 00	"	Aug. 1, 1904	
12	Bergeronnes		5	M. Savard	50 00	"	April 1885	
13	Escoumains		12	J. H. Topping	50 00	"	" 1885	
14	Baie des Bacons		8	P. Bouchard			May 6, 1892	Commission at 25 per cent, without guarantee at Baie des Bacons.
15	Mille Vaches		8	J. A. Puise	50 00 or commission		April 1885	
16	Anse Hamilton		11½	C. P. Easton			Sept. 1, 1903	Accommodation office.
17	Portneuf, light		6	S. Bouchard	50 00 or commission		July 1, 1890	
				E. Courbron (rep'r.)	420 00		April 1, 1888	
18	Sault au Cochon		7		50 00 or commission			Sault au Cochon closed September 30, 1896.
19	Bersimis		31	Mde A. Lausier, agt & op	500 00		Jan. 1, 1902	
				asst. opr.	180 00			
				E. Pope, distr. supt.	600 00		April 1885	
	* Totals		174		2,920 00			

* Note. In the estimates the maintenance of the Chicoutimi and North Shore line is provided under head of North Shore Line. They are operated conjointly.

North Shore (East of Bersimis).

1	P'te aux Outardes (cable)		12	H. Tremblay	50 00 or commission		Dec. 1, 1896	
	Pte Paradis (Manicouagan) cable landing		18					The repeating office formerly at Manicouagan was removed to Bersimis in September, 1896.
2	Scougalls Mills 14 mile loop line from Pte Paradis		28	Accommodation	25 p. c. commission		Aug. 1901	
3	River Godbout (cable)		26	N. A. Comeau	50 00 or commission		Oct. 15, 1885	
4	Pointe des Monts		18½	L. F. Faffard	50 00	"	Dec. 28, 1883	
5	Trinity Bay West		5¾	Z. Poulin	50 00	"	May 16, 1884	
6	Trinity Bay East		2½	A. Bilodeau	25 p. c or commission		" 1, 1889	
7	Caribou Islands		7	L. Comeau	"		Sept. 1, 1889	
8	Pointe aux Anglais		10½	Paul Côté	Accommodation office		Jan. 10, 1895	No commission is paid at this office.
9	Pentecost		6½	E. H. Tétu, D. Supt.	1,080 00 per annum		Nov. 1, 1891	
				Mrs. E. H. Tétu, as. opr	300 00	"	" 1, 1903	
10	Ste. Marguerite		47½	A. Therriault	180 00	"	July 1, 1888	
11	Clark City		5	Accommodation office	25 p. c. commission		April 17, 1903	
12	Seven Sands		17¾	P. E. Vignault, opr.	180 00 per annum		Jan. 2, 1884	
				L. N. Caron	540 00	"	May 29, 1902	Plus 50 cents per day when absent on duty.
13	River Moisie		15½	J. Poirier	50 00 or commission		June 1, 1896	There is also an accommodation office in operation at Moisie in the fishing season.
14	Pigou		28	Mrs. Peter Wright, op	100 00	"	Oct. 1, 1902	
				Peter Wright, repr.	112 00	"	" 1, 1902	
15	Little River		29	Miss H. Leberge	50 00	"	" 10, 1900	
16	Sheldrake		15	Mrs. Alphonse Girard	50 00	"	Dec. 1, 1904	
17	Thunder River		6½	Mrs. H. Cody	50 00	"	Feb. 1, 1890	
18	Magpie		14	Geo. Molloy	50 00	"	Oct. 1, 1889	
19	St. John River		9	B. Chambers	50 00	"	" 1, 1889	

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

CHICOUTIMI AND NORTH ST. LAWRENCE TELEGRAPH SYSTEM—*Continued.* NORTH SHORE (East of Bersimis).

Number.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		$ cts.		
20	Long Point	10	A. Maloney	500 00 per annum	Sept. 21, 1896	Long Point is the repeating office for the Anticosti, cable in operation since September 1, 1891.
			Mrs. A. Maloney, as.op.	180 00 "	Nov. 1, 1900	
21	Mingan	7	M. J. Maloney	50 00 or commission	Oct. 1, 1889	
22	Point Esquimaux	24	Mrs. D. C. Hould	240 00 per annum	Sept 1, 1897	Allowance for office rent $4 per month.
23	Betchouanes	20	Edwd. Cyr, inspr.	500 00 "	Nov. 2, 1902	Plus 50 cents per day when absent on duty.
			Jos. Picard, op. & rep.	212 00 "	July 15, 1904	
24	Piastre Bay	23	S. Tanguay, repr.	112 00 "	Sept. 18, 1902	
			Mrs. J. Beetz, opr.	100 00 "	" 18, 1902	
25	Watichou	15	Mrs. Cl. Bourque, opr.	100 00 "	Dec. 1, 1903	This office was closed on withdrawal of former agent from Sept. 4, 1903., $12 rent to J. Beetz.
			John Bourque, repr.	100 00 "	" 1, 1903	
26	Aguanus	21¾	S. Galant, repr.	112 00 "	Sept. 3, 1902	
			Mrs. Galant, opr.	100 00 "	" 3, 1902	
27	Natashquan	21	C. Vignault, repr.	112 00 "	" 5, 1902	
			Miss Vignault, opr.	100 00 "	" 5, 1902	
28	Kegaska	33	Geo. Anderson, repr.	112 00 "	" 16, 1902	
			Miss Anderson, opr.	100 00 "	" 16, 1902	
			J. W. Osborne, inspr.	500 00 "	" 1, 1902	Plus 50 cents per day when absent on duty.
29	Masquaro	18	Wm. Foreman, opr & rep	212 00 "	June 1, 1903	
30	Romaine	25	M. Blais, repr.	112 00 "	Sept. 17, 1902	
			Miss R. Blais, opr.	100 00 "	" 17, 1902	
31	Wolf Bay	24	R. Jones, repr.	150 00 "	Nov. 26, 1902	
			Mrs. R. Jones, opr.	100 00 "	" 26, 1902	
32	Pointe au Maurier	24	J. Galibois, repr.	112 00 "	Sept. 19, 1902	
			Miss P. Galibois, opr.	100 00 "	" 19, 1902	
33	Harrington	20	J. Jones, repr.	112 00 "	" 20, 1902	
			Mrs. Jones, opr.	100 00 "	" 20, 1902	
34	Whale Head	17	Nap. Nadeau, rep. & opr.	212 00 "	Jan. 21, 1903	
35	Mutton Bay	20	Alf. Cormier, rep. & opr.	444 00 "	June 1, 1902	
36	Baie de Ha.	27	Mrs. J. Monger, opr.	100 00 "	" 14, 1904	
			J. Monger, rep.	112 00 "	" 14, 1904	
37	St. Augustine	27	G. W. Burgess, rep. & opr.	212 00 "	Sept. 25, 1902	
38	Coxipi	24		212 00 "		Closed June 14, 1904.
39	Rocky Bay	30	Miss B. E. Chevalier, o.	100 00 "	April 20, 1904	
			L. O. Chevalier, rep.	112 00 "	" 20, 1904	
40	St. Paul River	21	G. Chevalier, repr.	112 00 "	Oct. 2, 1902	
			Miss Chevalier, opr.	100 00 "	" 2, 1902	
41	Brador Bay	29	Johnny Jones, opr.	100 00 "	June 13, 1903	
			P. C. Vignault, insp.	500 00 "	Feb. 1, 1903	Plus 50 cents when absent on duty.

42	Blanc Sablon	6	Thos. Morel, repr & opr.	212 00	"	Oct.	1, 1902	
43	Forteau Bay	13	A. Hart, repr. & opr.	212 00	"	July	19, 1902	
44	Pointe Amour	17	Thos. Whyatt, repr&opr	112 00	"	Feb.	17, 1903	
45	Western Modiste	16	Jas. Bolger, repr & opr.	212 00	"	Oct.	5, 1902	
46	Red Bay	13	Geo. Moore, repr	112 00	"	"	9, 1902	
			Miss Moore opr.	100 00	"	"	9, 1902	
47	Chateau Bay	30	J. Mahoney, opr&insp	500 00	"	Sept.	1, 1902	
			Miss Buckel, asst.opr.	180 00	"	Dec.	1, 1902	
			J. McCarthy, local rpr	100 00	"	Nov.	1, 1903	
48	Belle Isle	23¾	J. C. Colton, opr.	360 00	"	Sept.	14, 1901	
			Gen. inspector, North Shore System—M. W. Crean	1,500 00				
	Totals	916		13,176 00				

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ONTARIO—PELEE ISLAND TELEGRAPH SERVICE.

1	Leamington		J. McR. Selkirk, D. Supt.	50 00		Nov.	1, 1888	
2	Bairds	1	Accommodation office			"	2, 1904	
3	Leamington Dock	1	F. Deslauriers, accommodation office			"	1, 1895	
4	Tildens	5	Accommodation office			April	1, 1905	This is the connection that was formerly made with the club house near by.
5	Point Pelee	5	W. A. Grubb	Commission 25 p.c		Nov.	1, 1888	
	Leamington Dock to North Point Cable	17						The cable formerly 9½ knots from Point Pelee to the Island is now laid as here indicated 17 knots. The change was effected in August, 1901.
6	North Point Lighthouse	1	J. R. Ledwell	Commission 25 p.c		June	1, 1899	
7	North Dock	2	C. B. Quick	" "		Nov.	1, 1888	
8	McIntyre's Corner	2½		" "				Closed in August, 1904.
9	West Dock	2½	A. M. McCormick	" "		Nov.	9, 1888	
10	South Dock	5½	Mrs. F. B. McCormick	" "		Aug.	1, 1904	
	Totals	42½		50 00				

NOTE: This line is operated by telephones.

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

LINES IN THE NORTH WEST TERRITORIES.

No.	Stations.	Intermediate Distance.	Agents.	Salaries per Annum.	Date of Appointment.	Memo.
	Qu'Appelle–Edmonton Sec.	Miles.		$ cts.		
1	Qu'Appelle	0	J. S. MacDonald, Gen. Insp. R. C. MacDonald, Dist. Supt C. P. R. Tel. Co J. W. Wilson, lineman	2,000 00 1,500 00 420 00 500 00	June 1, 1905. Oct. 1, 1905. Dec. 1, 1896. Mar. 1, 1902.	
2	Fort Qu'Appelle	17	Miss E. Johnston	600 00	" 1, 1885.	
3	Touchwood	46	A. VonLindeburg	720 00	Nov. 1, 1883.	
4	Humboldt	78	H. J. MacDonald	720 00	Sept. 1, 1904.	Salary increased from $600, since Nov. 1, 1903.
5	Saskatoon (14 miles loop)	69	C. P. R. Tel. Co. T. G. Clement	300 00 600 00	Jan. 1, 1892. Oct. 1, 1903.	The agent operator at Saskatoon is joint with the C. P. R.
6	Henrietta	52	W. Salisbury	720 00	April 15, 1890.	
7	Battleford	47	J. D. Noel	720 00	Oct. 1, 1900	Transferred from Bresaylor, Sept. 1, 1904.
8	Bresaylor	27	T. J. Callahan Geo. Donovan, lineman	720 00 600 00	Dec. 1, 1904 Mar. 8, 1905	" Battleford "
——	Pitt	62				Closed since October, 1898. Office temporarily opened May 1,
9	Lloydminster loop (2 wires)	22	E. McCleneghan	600 00	April 18, 1904	till Aug. 6, 1904, for Immigration Department.
10	Onion Lake	13	H. McClenaghan	720 00	Oct. 1, 1900	Salary increased from $600, since Nov. 1, 1903.
11	Moose	32½	G. G. Mann	720 00	Aug. 1, 1902.	" " " " "
12	St. Paul de Metis	32	M. Therien	600 00	Dec. 1, 1899.	" " $360 " "
13	Saddle Lake	13	J. W. Carroll	720 00	Sept. 1, 1900.	A telephone line extends from the office at Saddle Lake to the Indus'l School, 6½ miles. Sl'ry inc'd from $600 since Nov 1, 1903.
14	Andrew Loop (2 wires)	4½	A. K. Morrison C. Norn, lineman	600 00 600 00	June 7, 1904. Mar —, 1905.	The loop line to Andrew runs from Victoria.
15	Victoria	37	R. Gordon	600 00	Feb. 1, 1905.	
16	Star	6	E. A. Holmes	600 00	Aug. 2, 1904.	
17	Fort Saskatchewan	43	A. W. M. Campbell	600 00	Oct. 1, 1898.	
18	Edmonton	24	T. J. McNamara W. McKay, lineman	720 00 720 00	" 1, 1901. May 1, 1886.	Salary increased from $360 from Aug. 1, 1904. The office at Edmonton has been operated jointly with the C. P. R. Tel.
19	Athabaska	98	Jas. McKernan	600 00	Oct. 1, 1904.	Co. since Jan 1, 1892.
	Telephone Extension	723		18,520 00		
20	Whitford	7	The Postmaster	Com. 25 p.c.	July —, 1905.	Connection is made with the telegraph office at Andrew.

	Branch Lines.						
—	Edmonton	0	In operation prior to 1905				This branch line operated by the Edmonton District Telephone Co.
1	St. Albert	9					
2	River Qui Barre	21	This section built in 1903.				
3	Alexandria	6					
		36					
—	Edmonton	0					
1	Indian Agency	14					
2	Spruce Grove	5					This branch is operated as a telephone line. Construction completed October, 1904.
3	Stoney Plain	5					
		24					
	Wood Mountain Section.						
1	Moosejaw	0	C. P. Tel., agent	240 00	Dec.	1, 1891.	Moosejaw office is operated jointly with the Canadian Pacific Telegraph Co.
			H. Sikes, repairer	600 00	"	1, 1893.	
2	Wood Mountain	90½	J. H. Thompson, agent	600 00	"	1, 1890.	
3	Willow Bunch	38	H. A. Noel, agent	600 00	Oct.	19, 1904.	
		128½		2,040 00			
	Duck Lake Section.						
1	Batoche	0	D. H. Grant	120 00	"	1, 1902.	
2	Duck Lake	9	A. H. Gordon	120 00	Feb.	1, 1903.	
3	Indian Agency	3½					Telephone connection.
		12½		240 00			

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

LINES IN BRITISH COLUMBIA.

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
	Kamloops—Lower Nicola.	Miles.			$ cts.		
			(See note in margin)				NOTE.—This line is operated under the superintendence of the resident engineer at Victoria, and for conversations 25c. for 5 minutes, half that rate for each additional 5 minutes or fraction thereof.
	Telephone Line.						
1	Kamloops	0	C. S. Stevens	Agt. opr.	300 00	June 1, 1904	
			Prov. Govt. Office	Lessee		July 1901	NOTE. The lessees pay a monthly rent for the
2	Anderson Creek	12	W. McLeod	"		" 1901	connections, and are allowed 25 per cent commission
3	Nicola Valley		W. R. McDonald	"		" 1901	on local tolls for messages and conversations of non-
4	Stumps Lake	13	Thos. Bullman	"		" 1901	subscribers.
5	Beaver Ranch		J. W. Moor	"		" 1901	
6	Quelchena	20	E. O'Rourk	"		May 1900	Three additional connections in July, 1901
7	Nicola Lake	9	A. E. Howse	"		" 1900	Add at Nicola Lake, July 1, or Government Office,
8	Coutlee		Blair & Co.	"		July 1901	Dr. Sutton, A. R. Carrington.
9	Lower Nicola	13	G. Armstrong	"		May 1900	
10	Aspen Grove	24					
11	Otter Valley	24					
12	Princeton	26					
13	Hedley	25	New line				See note in body of report.
14	Keremeos	20					
15	Fairview	12					
16	Penticton	37					
	Total	235					

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BRITISH COLUMBIA—*Continued.*

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo
	Vernon-Kilowna Line.	Miles			$ cts.		This line is operated both as a telephone and telegraph line.
1	Vernon	0	Miss G. E. Seaton	Agent and operator	360 00	Mar. 1, 1905	Joint agent with C. P. Telegraph.
			A. S. Muir	Telephone agent	Commiss.	" 1, 1905	The commission is 25 per cent of the Government line tolls.
2	Kilowna	35	H. H. Miller & Co	Agents tel. and tel'g'h	360 00	" 1, 1905	
			A. L. Weeks	Lineman	720 00	Aug. 1, 1905	
	Total	35			1,440 00		

GOVERNMENT TELEGRAPH SERVICE.—*Continued.*

BRITISH COLUMBIA—*Continued.*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
	Victoria—Cape Beale.	Miles.		$ cts.		
			(See note in margin).	.....	.....	NOTE.—The superintendence of this line has been in the hands of the resident engineer at Victoria since October, 1901, when the arrangement theretofore in operation with the C. P. Ry. Co. was terminated.
1	Victoria.....	0	E. Houghton, oper.(C.P.Tel.)	200 00	Nov. 1, 1891	Proportion of salary.
	Sooke.....	18	.....	.....	.....	
2	*Otter Point.....	8	E. Gordon, agt. and operator.	720 00	Dec. 1, 1891.	
3	*Jordan River (Shirley).....	10	Percy Clark.	540 00	" 1, 1903.	
4	Port San Juan (Port Renfrew)	30	E. C. Williams	240 00	Sept. 22, 1903.	
			J. W. Williams, repairer...	520 00	May 1, 1905.	
5	Carmanah Lighthouse..... (Clo-oose 2 miles west)...	24	W. P. Daykin, repairer ...	240 00	Nov. 1, 1891.	
			D. Logan, repairer	540 00	April 1, 1898.	
			R. S. Daykin, repairer.....	540 00	June 1, 1905.	
6	Cape Beale.....	28	M. Patterson, agt. & operator	120 00	Sept. 1, 1899.	
	Totals.....	118		3,660 00		

*Telephone connections for the convenience of several firms in the neighbourhood have been established at *Jordan River* for Messrs. Bell, Irving & Co., Point-no-Point; The B. C. Packer's Asso., Point no-Point and Jordan River; Capital City Canning Co., French's Ranch; J. H. Todd & Co., Coal Creek; 5 connections, rent paid $12 each for a canning season. At *Otter Point* for Messrs. J. H. Todd & Son, The B. C. Packer's Asso., Capital City Canning Co. and the B. C. Mess.: one connection in common at Sooke Wharf, $12 for the season.

GOVERNMENT TELEGRAPH SERVICE.—*Continued.*

BRITISH COLUMBIA—*Continued.*

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Meme.
	Nanaimo-Comox.	Miles.			$ cts		
1	Nanaimo	0	W. F. Archibald. A. M. Oliver, joint with C.P.R.	Agent and operator.. Assistant operator...	306 00 120 00	Mar. 1, 1896 June 1, 1902	The amount comprises $20 per month for agency and operation, $3 for messenger service and $2.50 for battery care.
2	Wellington	5	E. & N. Ry. Co..	Agent and operator .	Commiss..	April 1, 1893	
3	Parksville	23	Mrs. R. Williams W. Mills	" " .. Lineman	360 00 360 00	Dec. 1, 1897 June 1, 1903	Parksville, Quellicum section.
4	Union Bay	32¼	Miss E. McDonald Thos. Hudson	Agent and operator . Lineman	360 00 780 00	" 3, 1898 Nov. 17, 1898	
5	Union Mines		J. Dunsmuir.	Accommodat'n office.			See mention of this in body of report (1897-98).
6	Cumberland	10	Albert Peacy	Agent and operator	120 00 com. 25 p.c	Apr. 28, 1898	
7	Courtney	7					Courtney and Comox communicate by telephone at prearranged intervals.
8	Comox	7¾	M. McDonald	Agent and operator.	360 00	Nov. 1, 1895	
	Total	81			2,766 00		
	Parksville, Alberni and Cape Beale Line.						NOTE. The repairs of this line has been done jointly with the Can. Pac. Telegraph since December 1, 1902.
	Parksville	0	(See above)				
	Alberni	29½	Mrs. P. A. Haslam	Agent and operator .	240 00	Oct. 1, 1899	Proportion of salary for Comox line included.
1	Bamfield Creek	53	Can. Pac. Tel.		com. 50 p.c	Dec. 1902	
2	Cape Beale	4	M. Patterson	Agent and operator .	240 00	May 1, 1900	Proportion of salary for this line.
		86½			480 00		

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

BRITISH COLUMBIA—*Continued.*

No.	Stations.	Intermediate Distance.	Agents, &c.	Positions.	Salaries per Annum.	Date of Appointment.	Memo.
	Alberni-Clayoquot Line				$ cts.		
1	Alberni	0	P. A. Haslam.	Agent and operator.	120 00	Dec. 1, 1902	Proportion for this line.
2	New Alberni	2	E. A. Waterhouse.	Agent and operator.	Com. 25 p.c	Oct. 1, 1903	
	Franklin Creek ½ mile cable.	8					Line crosses canal at this point by submarine cable.
3	Uchucklesit*	10	E. B. Gerrard.	Agent lineman	660 00	" 1, 1902	Section extends from Franklin Creek to Pipestem Inlet, post offices address, New Alberni.
4	Uchuelet	10½	W. L. Thompson	Agent lineman	720 00	Dec. 1, 1902	
			H. J. Hillier	Lineman	660 00	" 1, 1902	
5	Clayoquot	66¼	E. S. Reeve	Agent lineman	720 00	" 1, 1902	
	Stubbs Island.			Accommodat'n office.			Private cable connection for local firm.
	Totals	96¾			2,880 00		
	Golden-Windermere Line.						
1	Wilmer	0	R. A. Power	Agent and lineman	780 00	Jan. 1, 1902	
2	Athalmer	5	Telephone Connt'n				Operated from Windermere, Wilmer and Spillimacheen.
3	Windermere	5	" "	G. C. Pitts		July 1, 1904	" Spillimacheen and Athalmer.
4	Spillimacheen	16	V. F. Dunn	Agent and lineman	900 00	Jan. 1, 1902	Local superintendency.
			Telep. Connct'n.				Operated from Windermere, Wilmer and Athalmer.
5	Golden	66	W. A. Decow	Agent and operator.	300 00	Dec. 1, 1904	Joint agent with C. P. Tel.
	Totals	92			1,980 00		

* Telephone connection between this office and premises of the Nahmint Mining Company.

GOVERNMENT TELEGRAPH SERVICE—*Concluded.*

BRITISH COLUMBIA—*Concluded.*

No.	Stations.	Intermediate Distance.	Agents and Operators.	Salaries per Annum.	Date of Appointment.	Memo.
	Vancouver Salt Springs Line.					
1	Duncan Station	9	E. & N. Ry. Co	Accommodation.	March 1, 1902.	
2	Maple Bay	3	Wm. Beaumont	"	" 1, 1902.	
3	Sanson Narrows to Salt Springs (cable)	$0\frac{3}{4}$				
4	Edwards' Store	3	Edwards & Co	Accommodation.	March 1, 1902.	
5	Ganges Harbour	9		"	" 1, 1904.	
	Totals	$24\frac{3}{4}$				

There have been no staff appointments on this line, it being worked by telephone for the present merely for general convenience, and looked after by the persons directly interested.

GOVERNMENT TELEGRAPH SERVICE.

YUKON LINES.

NAMES of employees and monthly salaries, &c., Yukon Telegraph Service, which includes Port Simpson, Barkerville, Quesnelle and Lillooet branches.

Number.	Stations.	Intermediate Distance.	Positions.	Salaries per Month.	Tariff.	Night Rate.
				$ cts.		
			C. E. Gooding, manager	60 00		
			H. B. Rochester, operator	42 00		
			C. Belleau, operator	42 00		
1	Ashcroft		M. A. Armstrong, operator	39 00		
			J. D. Fraser, lineman	75 00		
			R. P. Quain, clerk	83 00		
			J. T. Phelan, District Supt	175 00		
	Cache Creek	4	Accommodation office	50 p. c. com.	25 and 2	25 and 1
2	Bonapart	3½	" "	"	25 " 2	25 " 1
3	Pavillion	3½	Mrs. Bryson	"	25 " 2	25 " 1
4	Lillooet	22	S. A. McFarlane, agt & lineman	60 00	25 " 2	25 " 1
5	Clinton	26	E. LeBourdais, opr. and lineman	60 00	25 " 2	25 " 1
6	115 Mile House	55	D. M. LeBourdais "	60 00	25 " 2	25 " 1
7	150 "	35	S. T. Hall, operator and lineman	60 00	50 " 3	30 " 2
8	Harpers Camp	33	S. H. Patenaud, " "	60 00	50 " 3	30 " 2
9	Bullion	27				
10	Quesnel Forks	4	O. Landry, operator and lineman	66 66	50 " 3	30 " 2
11	Soda Creek	42	C. H. Smith, " "	60 00	50 " 3	30 " 2
12	Alexandria	28	G. A. Broughton " "	60 00	50 " 3	30 " 2
13	Quesnel	26	T. F. Murphy, " "	75 00	50 " 3	30 " 2
14	Lafontaine‡	46	Cariboo Consolidated Co	50 p. c. com.	50 " 3	
15	Barkerville‡	15	J. Stone, operator and lineman	60 00	50 " 3	
16	Blackwater & Fraser Lake	53	J. N. Walker, operator	75 00	75 " 5	
17	Bobtail Lake	45	J. W. Harrison, "	75 00	75 " 5	
18	Stoney Creek	35	W. J. Milne "	75 00	75 " 5	
			J. D. Charleson, lineman	70 00		
19	Fraser Lake	35	G. W. Proctor, operator	75 00	75 " 5	
			M. McNevin, lineman	70 00		
20	Burns Lake	69	W. Heinz, operator	75 00	75 " 5	
21	South Bulkley	30	E. Barrett, lineman	70 00	75 " 5	
22	North Bulkley	25				
23	Bulkley Ranch	27	H. N. Boss, operator	75 00	100 " 7	
			H. Fink, lineman	70 00		
24	Morricetown	35				
25	Hazleton	40	G. M. Swan, operator	100 00	125 " 10	
			E. R. Cox "	100 00		
			E. E. Charleson, line foreman	150 00		
			J. C. K. Seeley, lineman	75 00		
			F. Charleson "	70 00		
26	Meanskinisht§	35	E. Tomlinson, operator	50 00	125 " 10	
			R. Tomlinson, lineman	75 00		
27	Skeena Canyon §	47	J. W. Graham, operator	75 00		
			C. Durham, lineman	70 00		
28	Lorne Creek §	24	J. D. McIntosh, operator	75 00		
29	Grave Yard Point §		W. S. Dobbie "	75 00		
			A. E. Johnston, lineman	70 00		
30	Telegraph Point §	53	W. J. O'Neill, operator	75 00		
			W. R. Flewin, lineman	70 00	150 " 10	
31	Aberdeen §	4½	G. Coutu, operator	75 00		
			R. Donaldson, lineman	70 00		
32	Port Simpson §	39	M. W. O'Neill, operator	50 00		
33	1st Cabin	27	H. A. Cullon "	75 00		
			Hugh Taylor, lineman	70 00		
34	2nd Cabin	28	G. T. Carpenter, operator	75 00		
			W. Loiselle, lineman	70 00		
35	3rd Cabin	25	W. J. Tonvie, operator	75 00		
36	4th Cabin	20	P. Burnell "	75 00		
37	5th Cabin	20	E. A. Hawley "	100 00		
			C. Jepson, lineman	83 per day.		
38	6th Cabin	20	G. T. Brown, operator	100 00		
39	7th Cabin	19	T. E. Harkin "	100 00		
40	8th Cabin	19	Jas. Mooney "	100 00		
			L. Dubois, lineman	83 per day.		

SESSIONAL PAPER No. 19

GOVERNMENT TELEGRAPH SERVICE—*Continued.*

NAMES of employees and monthly salaries, &c., Yukon Telegraph Service, &c.—*Con.*

YUKON LINES—*Continued.*

Number.	Stations.	Intermediate Distance.	Positions.	Salaries per Month.	Tariff.	Night Rate.
				$ cts.	$ cts.	
41	9th Cabin	17	J. Muir, operator	100 00		
			G. Hill, lineman	$3 per day.		
42	Echo Lake	32	F. N. Jackson, operator	100 00		
			J. Lowery, lineman	$3 per day.		
43	25-Mile Cabin	25	J. H. Murie, operator	100 00		
			J. W. Hovey, lineman	$3 per day.		
44	Iskoot	16	J. W. Watts, operator	100 00		
			W. Warnock, lineman	$3 per day.		
45	Telegraph Creek	61	A. S. Gillespie, operator	100 00	175	10
			W. S. Simpson, lineman	75 00		
			A. J. Charleson, line foreman	150 00		
46	Shesley	45	W. P. Ball, operator	82 50		
			Geo. E. Adsit, lineman	75 00		
47	Nahlin	61	S. G. Lawrence, operator	82 50		
			R. McKay, lineman	75 00	185	10
48	Nakina	49	Geo. Coutts, operator	82 50		
			J. Huston, lineman	75 00		
49	Pike River	40	R. J. Barton, lineman & operator	82 50	200	15
50	Atlin	23	F. W. Dowling, operator	116 66		
			A. B. Taylor "	100 00		
			D. H. Gagné, line foreman	125 00		
51	Center Cabin	35				
52	Tagish	40	M. Grimes, operator	82 50		
			Adam Dickson, lineman	75 00	225	15
			Gastin Aish "	75 00		
53	Cariboo Crossing	18	S. E. Chambers, operator	82 50		
54	White Horse	65	A. B. Clegg, dist. supt	175 00		
			H. Gilchen, store-keeper	150 00		
			J. P. Champagne, clerk	112 50		
			G. S. Flemming "	115 00	250	15
			G. Henderson, lineman	75 00		
			Wm. Watson, messenger	25 00		
			T. Wakamoto, house kpr & cook	75 00		
55	Lower LeBerge	59	Douglas Potts, operator	82 50		
56	Hootalinqua	30	W. Peters, operator	82 50		
57	Big Salmon	34	H. O. Lokken, lineman	75 00		
			R. O. Freeman, operator	82 50		
58	Five Fingers	96				
59	Yukon Crossing	8	Aubry Tennant, operator	82 50		
			K. Smith, Lineman	75 00		
60	Fort Selkirk	50	Bruce Watson, operator	82 50	275	15
61	Selwyn	30	R. P. Hall, operator	82 50		
			N. Wade, lineman	75 00		
62	Stewart River	75	Chas. N. Graham, operator	82 50	300	20
63	Ogilvie	23	J. W. Wilkinson "	82 50		
64	Dawson	48	W. Brownlow, manager	150 00		
			G. A. McLachlin, operator	125 00		
			F. A. Hanley, operator	125 00		
			R. C. McDonald, clerk	100 00		
			H. Douglas, jr., messenger	$3 per day.		
			Mrs. D. Hunt, house kpr & cook	100 00		
			Jas. McMenamin, lineman	80 00		
			C. A. Couture, line foreman	125 00		
65	Forty Mile	55	W. H. Mullin, operator	82 50	325	20
66	Boundary	40				
	Vancouver		J. Y. Rochester, act. supt	200 00		
			J. E. Gobeil, genl. inspr	166 66		
			J. J. Healy, clerk	140 00		
			Emma Hays, stenographer	65 00		
		2,252½		8,840 98		
			Add 10 persons $3 per day as above	867 00		
			Total monthly salaries say	9,707 98		

* Branch from Ashcroft. † 150 Mile House. ‡ Quesnel. § Hazelton.

The rates given above for points north of Quesnel are one-third less than those primarily adopted, which were calculated on the general basis of 50 cents for 100 miles and 25 cents for each additional 100 miles, counting the distance from Ashcroft.

The local rates between offices north of Quesnel are calculated on the basis of 50 cents for 100 miles and 25 cents for each additional 100 miles, and the local rates between offices north of Atlin are fixed at 50 cents for each 100 miles.

Cable Messages.—On transatlantic business the word rate is twice as much as the additional word rate given in the list for all points north of Ashcroft : Barkerville, 3×2=6c.; Dawson 20×2=40c. per word.

On transpacific business the word rate is the additional word rate plus 4c.; Barkerville, 3+4=7c.; Dawson, 20+4=24c. per word to or from Ashcroft.

Press despatches.—For the Yukon line the rate is 1 cent per word, minimum charge $1; this applies to the whole line.

Yukon system connects at Boundary with U.S. Sig. Service Telegraph System.

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* Where the tariff rate is entered as 25-1 cents or 50-2, &c., the meaning is that the rate is 25 cents or 50 cents for ten words and 1 cent or 2 cents for each additional word.

GOVERNMENT TELEGRAPH LINES.

SPECIAL TARIFF.

Cable messages.—Rates for cable messages passing over the Yukon line will be found in connection with the Yukon tariff in the preceding pages.

Elsewhere, the rate for transatlantic messages passing over the government lines is the same as for ordinary through messages, excepting where the ordinary tariff is more than 25 cents ; in such cases the government line rate is 4 cents per word, with a minimum charge of 25 cents. For example :—

For a message of six words or less the charge is 25 cents for government line.

For a message of seven words the charge is (7 x 4) 28 cent for government line.

For a message of twelve words the charge is (12 x 4) 48 cents for government line.

In every case the counting of words includes the address and signature in the same way as for transatlantic cable tolls.

Press despatches.—The rate for press despatches on the government lines (excepting the Yukon line), is 20 cents per 100 words; no single message less than 20 cents.

For the Yukon line the rate is 1 cent per word, minimum charge $1 ; this applies to the whole line. Exception, Barkerville—Ashcroft section (local) minimum charge 50 cents.

REGULAR TARIFF.

NOVA SCOTIA.

Line from North Sydney to Meat Cove and Mabou—Local rate, 25-1 (20 offices).*

Big Bras d'Or	Through rate 15-1 from	North Sydney,	W. U. office.
New Campbellton's (Kelly's Cove)	"	"	"
Englishtown	"	"	"
Baddeck	"	"	"
Murray	"	"	"
Indian Brook	"	"	"
French River	"	"	"
South Ingonish	"	"	"
Ingonish	"	"	"
Neil's Harbour	"	"	"
Dingwall	"	"	"
Aspy Bay	"	"	"
Meat Cove	"	"	"
Pleasant Bay	"	"	"
Cheticamp	"	"	"
Grand Etang	"	"	"
North-East Margaree	"	"	"
Margaree Harbour	"	"	"
South-West Margaree	"	"	"
Inverness Town (Broad Cove)	"	"	"

* When the tariff rate is entered as 25-1 or 50-2, &c., the meaning is that the rate is 25 cents or 50 cents for ten words and 1 cent or 2 cents for each additional word.

Night messages are exchanged with the Western Union Telegraph Company for offices on this line. Rate 1 cent per word with minimum of 15 cents. The local night rate is 1 cent per word with minimum of 25 cents.

Line from Barrington to Cape Sable—Local rate, 12-1.

Newellton	Through rate 12-1 from Barrington, W. U. office.
Cape Sable Lighthouse	" " "

This line is now operated by the local telephone company. Terms of lease provide for former telegraph rate as above not being exceeded.

NEW BRUNSWICK.

Line from Chatham to Point Escuminac—Local rate 25-1 (4 offices.)

Bay du Vin	Through rate 15-1 from Chatham, G. N. W. office.
Lower Hardwicke	" " "
Escuminac	" " "
Pt. Escuminac Lt. House	" " "

Line from Eastport, Me., to Campobello, Grand Manan, and Whitehead Islands (9 offices)—Local rates between offices on Grand Manan, and Whitehead Islands, 15-1; Grand Manan and Campobello Island 25-2; The Islands and Eastport, Me., 25-2, W.U.O.

Welchpool, Compobello	Through rate 25-2 from Eastport, Me., W. U. office.
Flagg's Cove, Grand Manan	" " "
Castalia	" " "
Woodward's Cove	" " "
Grand Harbour	" " "
Seal Cove	" " "
Southern Head	" " "
Cheney's Head	" " "
Whitehead Islands	" " "

QUEBEC.

Line from Gaspé to Anticosti Island, Q. (9 offices)—Local rates between offices on the Island 25-1 ; Gaspé and the Island offices 50-2.

South-West Point	Through rate 50-2 from Gaspé, G. N. W. office.
Salt Lake	" " "
Shallop Creek	" " "
South Point	" " "
Heath Point	" " "
Fox Bay	" " "
Becscie River	" " "
West Point	" " "
English Bay	" " "

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Line from Meat Cove, C.B., N.S., to Magdalen Islands, Q. (9 offices)—Local rates between offices on the Islands 25-1 ; Meat Cove and the Islands 50-2 ; offices on the Meat Cove line and the Islands 50-2.

Amherst Island	Through rate 50-2	from North Sydney,	W. U. office.
Amherst Lt. House	"	"	"
Etang du Nord Village	"	"	"
Etang du Nord Lt. House	"	"	"
Cap aux Meules (Grindstone)	"	"	"
House Harbour	"	"	"
Grosse Isle	"	"	"
Grand Entry	"	"	"
South Beach	"	"	"
Bryon Island	"	"	"

Line from Meat Cove, C.B., N.S., to St. Paul's Island—Local rate between offices on Meat Cove line and St. Paul's 50-2 (1 office).

St. Paul's Island Lt. House 50-2 from North Sydney, N.S., W.U. office.

Line from Quebec to Grosse Isle Quarantine Station (7 offices)—Local rates between offices on Orleans Island and Isle Réaux, 15-1; on Orleans Island, Isle Réaux and Quebec, 15-1; on Orleans Island and Grosse Isle, 25-1; on Isle Réaux and Grosse Isle, 15-1.

St. Pierre, Orléans Island	Through rate 15-1	from Quebec,	G. N. W. Office.
Ste. Pétronille	"	"	"
St. Laurent	"	"	"
St. Jean	"	"	"
St. François	"	"	"
Isle Réaux	"	"	"
Grosse Isle	" 25-1	"	"

Line from Baie St. Paul to Chicoutimi (7 offices).

For business with offices west of Baie St. Paul and terminating at Quebec, add 15 cents and 1 cent to the government line tariff.

For business with offices west of Baie St. Paul, beyond Quebec, add the full rate of the Great North-western Telegraph Company to the government line tariff.

Line from Murray Bay to Chateau Bay (48 offices) with branch to Anticosti and extension to Belle Isle.

For business with offices west of Murray Bay and terminating at Quebec, add 15 cents and 1 cent to the government line tariff.

For business with offices west of Murray Bay, beyond Quebec, add the full rate of the Great North-Western Telegraph Company to the government line tariff.

Local rates between offices not more than 100 miles apart 15-1; more than 100 miles apart 25-1 ; on mainland and Anticosti 50-2 ; and on mainland and Belle Isle 50-2.

St. Urbain	15-1 from	Baie St. Paul (Ck. Que.)	G. N. W. Office.
Lacruche	"	"	"
St. Alexis	"	"	"
L'Anse St. Jean	"	"	"
St. Alphonse de Bagotville	"	"	"
Chicoutimi	"	"	"

Cap à l'Aigle	15-1	from Murray Bay (Ck. Que)	G. N. W.	office.
Ste. Fidèle		"	"	"
Port au Persil		"	"	"
St. Siméon		"	"	"
Baie des Rochers		"	"	"
Rivière aux Canards		"	"	"
St. Etienne		"	"	"
Tadoussac		"	"	"
Sacré Coeur		"	"	"
Bon Désir		"	"	"
Bergeronnes		"	"	"
Escoumains		"	"	"
Baie des Bacons		"	"	"
Mille Vaches	25-1	"	"	"
Portneuf Mills		"	"	"
Portneuf Light		"	"	"
Sault au Cochon		"	"	"
Betsiamis (Bersimis)		"	"	"
Manicouagan (Pt. Outardes)	25-1	"	"	"
Scougall's Mills		"	"	"
River Godbout		"	"	"
Pointe des Monts		"	"	"
Trinity Bay, West		"	"	"
Trinity Bay, East		"	"	"
Caribou Islands		"	"	"
English Point		"	"	"
Pentecost		"	"	"
Ste. Marguerite		"	"	"
Clark City		"	"	"
Seven Islands		"	"	"
River Moisie		"	"	"
Little River		"	"	"
Sheldrake		"	"	"
Thunder River		"	"	"
Magpie		"	"	"
St. John River		"	"	"
Long Point		"	"	"
Mingan		"	"	"
Point Esquimaux		"	"	"
Betchouanes		"	"	"
Piastre Bay		"	"	"
Watichou		"	"	"
Aguanus		"	"	"
Natashquan		"	"	"
Kegaska		"	"	"
Masquaro		"	"	"
Big Romaine		"	"	"
Wolfe Bay		"	"	"
Pointe du Maurier		"	"	"
Harrington		"	"	"
Whale Head		"	"	"
Baie des Moutons		"	"	"
Bay de Ha		"	"	"
St. Augustin		"	"	"
Coxipi		"	"	"

Rockey Bay	15-1	from Murray Bay (Ck. Que.)	G. N. W. office.
St. Paul River	"	"	"
Brador Bay	"	"	"
Bonne Espérance (St. Paul's River)	"	"	"
Forteau Bay	"	"	"
Pointe Amour	"	"	"
Red Bay	"	"	"
Chateau Bay	"	"	"
Belle Isle	50-2	"	"
Anticosti Id. via Long Point.		"	"

ONTARIO.

Line from Leamington to Pelee Island (Telephone Circuit)—Local rates between Leamington and Point Pelee 15-1 ; mainland and Island offices 25-1 ; offices on the Island 15-1 (8 offices).

Gun Club House, mainland	15-1	(thro' business) from	Leamington. G. N. W.
Point Pelee mainland	"	"	"
Leamington Dock	"	"	"
Bairds	"	"	"
North Pt. Lt. H'se, Pelee Id.	"	"	"
North Dock, Pelee Island	"	"	"
McIntyre's Corners	"	"	"
West Dock, Pelee Island	"	"	"
South Dock	"	"	"

NORTH-WEST TERRITORIES.

Line from Qu'Appelle (C.P.R. Stn.) to Edmonton, Alberta—Local rates, 15-1, 25-2, 50-3, for distances 10 to 600 miles (13 offices).

Fort Qu'Appelle	25-2	Qu'Appelle or Saskatoon.	
Touchwood	"	"	
Saskatoon	"	"	
Saskatoon (Ts. office C.P.R. Tel.)	"	"	
Henrietta	"	"	
Battleford	"	"	
Bresaylor	25-2	Saskatoon;	50-3 Qu'Appelle or Edmonton.
Onion Lake	"	"	
Moose	"	"	
St. Paul de Métis	50-3	Saskatoon,	Qu'Appelle or Edmonton.
Saddle Lake	"	"	
Victoria	25-2	Edmonton ;	50-3 Qu'Appelle or Saskatoon.
Star	"	"	
Fort Saskatchewan	"	"	
Edmonton (Transfer office C.P.R. Tel.)	"	"	

Line from Moosejaw (C. P. Stn.) to Wood Mountain—Local rates, 25-2 (1 office).

Wood Mountain	25-2	from Moosejaw.

BRITISH COLUMBIA.

Line from Victoria to Cape Beale—Local rate, 50-3 (6 offices).

Sooke	50-3 from Victoria	C. P. R. Tel. office.
Otter Point	"	"
Jordan River	"	"
Port San Juan	"	"
Carmanah Lt. House	"	"
Cape Beale	"	"

Line from Nanaimo to Comox—Local rate, 25-2 (9 offices).

Wellington, (C.P.R. & E. & N. Ry.	25-2 from Nanaimo.	
Parksville	"	or Wellington.
Fanny Bay	"	"
Cumberland	"	"
Union Bay	"	"
Union Mines	"	"
Courtney	"	"
Comox	"	"
Alberni (branch)	"	"

Line from Alberni to Cape Beale—Local rate, 50-3.

Between offices on the Victoria-Cape Beale line and the Nanaimo-Comox line, via Alberni, 50-3.

Line from Golden to Wildermere—Local rate 25-2 (3 offices).

1. Athalmer	25-2 from Golden	(C. P. Ry.)
2. Wilmer	"	
3. Windermere	"	

Line from Kamloops to Lower Nicola (Telephone) (16 offices).

Connections are leased and lessees allowed commission on messages of non-subscribers. Tariff 25-2 local from Kamloops, and for conversations 25 cents for five minutes, half that rate for each additional five minutes or fraction thereof.

Yukon System.

Tariff rates for the Yukon lines are given in the Table of Staff, &c., in the foregoing pages.

SUMMARY.

Offices on government lines, as listed	312
Offices at transfer points with connecting lines	16
Total number embraced by the service	327

SPECIAL REPORT

ON THE

SOUTH BRITISH COLUMBIA TELEGRAPH SYSTEMS

By J. E. GOBEIL, Inspector.

SPECIAL REPORT ON THE SOUTH BRITISH COLUMBIA TELEGRAPH SYSTEMS.

By J. E. GOBEIL, Inspector.

THE DEPARTMENT OF PUBLIC WORKS, CANADA,

OTTAWA, April 10, 1905.

D. H. KEELEY, Esq.,
General Superintendent,
Dominion Government Telegraphs,
Ottawa.

SIR,—I have the honour to submit to you a report on the inspection you had instructed me to make of the Kamloops-Nicola-Penticton and Kelowna-Vernon telephone lines in which I have thought it advisable to embody, in full, statements regarding the line and suggestions concerning the necessary extensions to be made, also regarding the way in which it should be managed for the better accommodation of the people it is intended to serve.

I will at first give a description of the service as it is at present, as well as of the territory traversed by the line, some notes concerning the mode of construction, then the suggestions which I take the respectful liberty to make.

DESCRIPTION OF THE LINE.

Kamloops, B.C.—
Telephone in C. S. Stevens' office.
W. McLeod's, first telephone on line, 12 miles from Kamloops.
W. McDonald, second telephone on line, 20 miles from Kamloops.
Bulman's, third telephone on line, 24 miles from Kamloops.
Moore's, fourth telephone on line, 38 miles from Kamloops.
Kirby's, fifth telephone on line, 47 miles from Kamloops.

Nicola, 55 miles from Kamloops.
A. E. Howse, sixth telephone on line.
Mr. Carrington, seventh telephone on line.
Provincial Government Office, eighth telephone on line.

Coutlee, 8 miles from Nicola.
Blair & Co., ninth telephone on line.

Lower Nicola, 12 miles from Nicola.
Woodward's, tenth telephone on line.
Armstrong's eleventh telephone on line.

The above shows the 'phones now in operation on the Kamloops-Nicola, Coutlee and Lower Nicola line.

From Kamloops the line crosses the foothills which are very sparsely wooded. The line is in very good condition, although it has been up for over six years, and with very slight repairs could be placed in first-class shape. The greater part of this line is strung on planted poles, very few tree-poles having been used.

Kamloops, 251 miles from Vancouver is a divisional point on the Canadian Pacific railway, and is the principal town in the Thompson river valley, was first established years ago as a Hudson Bay post. Population, 1,154. The north fork of the Thompson river comes down from the mountains, 200 miles northward, and here joins the main river. The principal industry of the Kamloops district is grazing. This is the supply point for a large ranching and mineral region to the south, reached by stage lines, and for the mines being operated in the immediate vicinity of the town. The elevated lands lying to the southward and westward of Kamloops are mostly used for cattle ranges. Cattle and horses are raised in considerable numbers. As far as mining is concerned it is to a great extent still in the prospect stage. The only systematically developed mine in the vicinity of Kamloops is the 'Iron Mask Mine,' six miles to the southwest, which was bought some years ago by the British Columbia Exploring Syndicate of London. An extensive plant has been installed on this property; it is connected with Kamloops by a private telephone line. A fine wagon road, 55 miles in length, leads from Kamloops to Nicola.

As shown above, there are twelve phones on this line from Kamloops to Lower Nicola. If an exchange be established at Nicola, seven more people, who have made application for phones, could be accommodated, making a total of 19 phones on this line.

Nicola Valley.

Nicola to Princeton.

Nicola is the starting point of the new line called the Nicola-Penticton line which was opened for business about February 1, 1905.

Munro's, 26 miles from Nicola, first phone.
Thynne's, 46 miles from Nicola, second phone.
DeBarro's, 55 miles from Nicola, third phone.

Granite Creek—
Mrs. James, 61 miles from Nicola, fourth phone.

Princeton—
A. E. Howse, 72 miles from Nicola, fifth phone.

From Nicola 5½ miles of the line were built by Mr. A. E. Howse, general merchant of Nicola. These 5½ miles are built over open country where there was no timber, but this stretch of the line is in very good shape. Beyond this point to six miles beyond Munro's, a distance of 31 miles, only 252 planted poles were used, which would cover a distance of about 7¾ miles, the balance, 23 miles, only tieing, stringing of wire and placing of sideblocks and insulators was done as the line was strung on trees all of the way. A Mr. Hunter, of Nicola, seems to have acted as a general foreman over the construction of this line from Nicola to Penticton; the work being done by day labour.

From a point about 10 miles south of Munro's to Thynne's, the work has been well done, good poles and neat tieing.

From Thynne's to Granite Creek the line is in fairly good condition.

From Granite Creek to Princeton, 11¾ miles, the construction is not so good.

From a point about six miles south from Munro's, only 64 poles were planted in a distance of 40 miles, making about two miles of planted poles, so that the line is strung on trees 38 miles of the distance to Princeton, or to recapitulate, on the construction from Nicola to Princeton, 316 poles, representing 10 miles of line were planted, and the 5½ miles built by Mr. A. E. Howse, all planted poles, makes a total of 15½ miles of planted poles on 72 miles of line to Princeton, the balance being strung on trees.

Nicola, including Upper and Lower Nicola, is a fine pastoral country with extensive valleys of good land for general agriculture. Two wagon roads go out of Nicola to the Canadian Pacific railway, one via Spence's bridge and the other to Kamloops.

The Douglas Lake Cattle Company and the British Columbia Cattle Company have extensive ranges in this section, where a large number of beef cattle are produced for the coast markets. The road direct to the south leads over the high lands into the valley along which there are many good farms. There are 161 settlers at Nicola and vicinity. Stock raising is practically the only industry of the valley. Other products are used entirely for home consumption. The mining industry, owing to lack of transportation, is yet in an undeveloped stage. Owing to one great need of the district, railway communication, new settlers are coming in slowly. The population is scattered. Public schools are situated at Nicola and Lower Nicola. There are several mining camps in this section: Aspen Grove, Quilchena, Mill creek, Ten Mile and Stump lake. About Coutlee and in the neighbourhood of Nicola lake there are some seams of very good coal.

As shown above, there are five 'phones on this line from Munro's to Princeton, both included, but with an exchange seven more phones could be put on the line which at present is altogether impossible, and these 'phones are urgently desired by the people along the line. This would make a total of twelve 'phones on these 72 miles of line.

SIMILKAMEEN VALLEY.

Princeton to Penticton.

In Similkameen valley is included White lake, Keremos, Princeton and Otter creek. A good wagon road leading to Osoyoos, the mines in the boundary country and to Penticton, is the only means of communication at the present time. Princeton is about 40 miles higher up the Similkameen river than Keremos at the junction of the Tulameen.

Like the Kamloops division and Nicola valley, grazing and the raising of cattle is the only industry.

Public schools are situated at Princeton, Fairview, Keremeos and Similkameen. South-east from Princeton, 25 miles down the Similkameen river is Camp Hedly, a gold and copper camp and the only camp in the Similkameen district where any continuous development work and real mining has been carried on for a number of years, the result of which has been the opening up of the Nickel Plate mine and the erecting of a 40 stamp mill. It is stated that this company, The Daily Reduction Company, have already expended $2,000,000 at this place in opening up the mine and installing their plant. The cyanide plant is stated to be the largest in the province.

No description, however slight, of the Similkameen district would be fair without mentioning the coal about Princeton which covers an area of 30 square miles with seams of coal in sight varying from 2½ feet to 18 feet in thickness. There is a good wagon road all through this district to Penticton where connection is made with the Okanagan Branch of the C.P.R.

Princeton to Penticton—
Stewart and McDonald, sawmill, 21 miles from Princeton, phone.

Hedley—
John Love, 26 miles from Princeton, phone.
Bradshaw's, 5 miles from Hedley, phone.

Keremeos—
Richter's, 20 miles from Hedley, phone.
Kirby's.

Fairview—
McCuddy's, 38 miles from Hedley, phone.
John Love.

Okanagan Falls—
W. J. Snodgrass, 54 miles from Hedley, phone.

Penticton—
J. A. Schubert, 68 miles from Hedley, phone.

From Princeton to Hedley the distance is 26 miles and for 19 miles of this the line is strung on trees.

From Hedley to Keremeos, a distance of 20 miles, the line is in very good condition, poles are large, and the wire well strung. The line was down in a couple of places, but it was repaired.

Keremeos.—The line branches here, going up Keremeos creek in a northeasterly direction for a distance of seven miles, then follows the wagon road to Penticton. From Keremeos to Clark's half way house, 151 poles were used, making about five miles of poles. The distance from Keremeos to Penticton following the stage road is 30 miles.

Keremeos to Fairview, 17½ miles.—The poles are very good and larger than any on the other lines.

The line from Fairview to Okanagan Falls and from Okanagan Falls to Penticton is in very good shape, only a few sideblocks being ripped off the poles or trees, owing to heavy strain.

There are nine phones on the line from Princeton to Penticton, while seventeen additional are wanted, two at Princeton and 15 at Hedley.

OKANAGAN LAKE.

1. *Penticton to Kelowna.*—This district includes Penticton, Trout Creek, Summerland, Peachland and the various ranches and settlements on the shore of Lake Okanagan, some ninety miles long, extending from Penticton on the south to beyond Vernon on the north.

Penticton is a small settlement at the south end of Lake Okanagan, and is the end of navigation for steamers plying on the lake. Trout Creek is six miles to the northward on the west side and Summerland some three miles farther. Peachland is about ten miles from Summerland, still on the edge of the lake. The settlers, apart from the settlements before mentioned, are somewhat scattered owing to the abrupt nature of the shores which do not permit of ranching everywhere. Communication is maintained by steamers which ply on the lake.

On the east side about half way up the lake is Okanagan Mission of which Kelowna is the chief place and shipping point.

There is no telephone nor telegraphic communication between Penticton and Kelowna.

2. *Kelowna to Vernon (34 miles) End of Government Lines in this District.*—Kelowna is situated in the heart of the Okanagan Valley thirty-four miles from Vernon by road. To a casual observer, it seems to be a most flourishing town. The climate of the Okanagan valley is perfect, the days are warm, but the nights are cool, they have very little snow and sleighing is a matter of opportunity rather than of custom. Public schools are established at Kelowna, Lambly, Okanagan Falls, Okanagan Mission and Peachland.

This line is operated both by telephone and telegraph, which seems to suit the inhabitants of both Kelowna and Vernon.

At Vernon the Hinton Company of Vancouver and Victoria, are installing a local telephone service and Kelowna expects to soon have one, which will produce an increase of revenue to the government line.

At Kelowna the telephone and telegraph instruments are both in the agent's house and are operated by Mr. Millie.

In Vernon the telegraph and telephone are in the C. P. R. office where a joint operator attends to both the government and C.P.R. business. There is also a telephone office in a store belonging to a Mr. Muir, who receives a commission on business done over the government telephone line.

To place these lines in good condition an experienced lineman should be sent in with a couple of men and a complete outfit of tools, and ordered to go over the whole line from Kamloops to Penticton. With the line in good shape throughout, a service can be established that will be of utmost satisfaction to the inhabitants of the several districts and a credit to the government. While the people on the line from Vernon to Kelowna are well satisfied with the present dual service of telegraph and telephone, I may say that on the Kamloops-Penticton stretch nothing but a telephone will suit, and I respectfully recommend that the system now used be continued.

As to the management of the line, the same seemed to be in a state of chaos, a different rate seemed to apply to almost each telephone, no one seemed to know what the rates were. At the present time, with the help of Mr. Stevens, of Kamloops, the following tariff was placed in force and everybody is pleased and satisfied:—

Stores and hotels	$5 00	per month.
Stores and hotels where accounts are kept	4 00	" "
Dwellings	3 50	" "

Messages—

Distance up to 100 miles	25c.	and	2c.
" 100 to 150 "	35	"	3
" 150 to 200 "	40	"	3
" 200 to 250 "	50	"	4

Conversations—

Distance up to 100 miles	5c.	per minute.
" 100 to 150 "	10	" "
" 150 to 200 "	12	" "
" 200 to 250 "	15	" "

Minimum charge for conversations and messages 25 cents. I would strongly recommend that the tariff be not changed.

There are now 26 'phones on the line from Kamloops to Penticton and with such a number on a straight line the resulting service cannot be satisfactory.

This exemplifies at once the necessity for the installation of exchanges at Nicola and Hedley, as with an overloaded line, which occurs with more than six or seven 'phones, good service cannot be obtained, owing to the confusion in the ringing, calls, &c.

The following is a list of the required improvements to give a satisfactory service over the government lines in the section of British Columbia just inspected.

1. The establishment of exchanges at Nicola and Hedley.
2. The closing of gap between Kelowna and Penticton.
3. Connecting Spence's Bridge on the C.P.R. with Nicola.
4. Extension from Fairview to Midway.
5. Completing construction from Keremeos to Clark's.

1. *Exchanges at Nicola and Hedley.*

This is absolutely necessary to give satisfactory service as the line is now overloaded with telephones and to take the instruments away from the people would raise a storm of protest from the whole country. There is only one of two things to do, either take off 'phones from the line or install an exchange at Nicola. The same advice applies to Hedley.

Following is an estimate of the cost of exchanges at Nicola and Hedley:—

NICOLA EXCHANGE.

(Grounded Circuit).

Cost of materials	$320 27
Freight charges, Montreal to Spence's Bridge	70 48
Poles to be had in neighbourhood, 20, $1.50 each	30 00
Installation, men's wages and board	189 00
Wagon freight, Spence's Bridge to Nicola	60 00
Contingencies	75 00
Total cost	690 75

HEDLEY EXCHANGE.

(Metallic Circuit.)

Cost of materials	$456 90
Freight charges, Montreal to Penticton, B.C.	135 67
Poles (to be had near Hedley), 30, at $1.50 each	45 00
Installation, nem's wages and board	189 00
Wagon freight, Penticton to Hedley	125 00
Telephones, 15 at $30	450 00
Contingencies	100 00
Total cost	$1,501 57

A metallic circuit is recommended for Hedley instead of a grounded one, such as at Nicola, owing to the electric light service in Hedley, which does not exist at Nicola.

2. *Closing of Gap between Kelowna and Penticton.*

Everybody along the line, and especially at Penticton and Kelowna, earnestly desires the closing of this gap and they give, as their main reason, the fact that all supplies and freight, for the section of the country from Vernon to Princeton and even fardtherd north, comes in overd the lake and the people of these localities have no means of communication over this break in the government telephone service. Further, owing to the existence of this gap the inhabitants of Trout Creek, Summerland, Peachland and Lambly are altogether isolated. This part of the country produces large quantities of fruit and one can easily see how handicapped people are owing to lack of knowledge of the state of the markets. It is not only the people living in the locality who are so affected by this break in the line, but everybody from Vernon to Tulameen.

The distance from Penticton to Kelowna is 45 miles. If it should be decided to close this gap, about two miles of cable would be required to cross the lake opposite Kelowna. The approaches are sandy and the bottom is reported to be the same. The closing of this gap would cost about $5,500, not including cable.

No change should be made in the working of the Kelowna-Vernon line, as the persons most interested owing to the nature of their business prefer to use the telegraph, and certainly would not use anything else for the transacting of their business.

If this gap be closed the same system should be adopted that now exists on the Kelowna-Vernon line, that is a dual telephone and telegraph service from Penticton to Kelowna.

3. *Connecting Nicola with Spence's Bridge.*

It has been represented that the first intention of the department was to build from Spence's Bridge to Nicola, but, subsequently, instructions were issued to build over the route the line now follows, that is, Kamloops to Nicola, and I understand that the merchants of Nicola very urgently desire and need the extension of this line from Nicola to Spence's Bridge, because all the freight coming into Nicola and going to Tulameen and even Granite Creek comes in over this road, consequently all the business and interests of the people of this locality lies in that direction.

The distance from Nicola to Spence's Bridge is 35 miles, and this extension could be built for $3,500.

4. *Extension from Fairview to Midway.*

There is at present in the department a petition praying for this extension and I have seen a great number of people, while on this inspection, who repeatedly asked to have this petition brought to the notice of the proper authorities and begging that notice be taken of same. If the extension asked for was built it would give the inhabitants of the district, through which the government line now passes, connection via Midway with what is known in British Columbia as the Boundary Country, the Kootenays and with an outlet via Spokane. There is at present a telephone system in that section, and Midway is on the circuit. Different routes have, I believe, been advocated, but the most rational, effective, and shortest which would prove satisfactory to the majority would be:—

From Fairview to Osoyoos	13	miles.
" Osoyoos to Sidley's	13	"
" Sidley's to Gillespies	4	"
" Gillespies to Rock Creek	12	"
" Rock Creek to Midway	12	"
Total	54	"

This could be built for the sum of $6,500.

5. *Completing from Keremeos to Clark's.*

Part of the poles on this spur are planted, trees blazed, and if insulators, side-blocks, and wire were placed on this section, the requirements of Hedley, Penticton and Keremeos would be satisfied.

Olalla is 3½ miles from Keremeos, with a population of 25. 'Phones are very much wanted at this place, and in my opinion the line should be completed as far as Clark's Half Way House, where a telephone is urgently needed and asked for. This would cost about $300.

RECAPITULATION OF COST OF REQUIRED IMPROVEMENTS.

1.	Exchange at Nicola	$ 690 75
	" at Hedley	1,501 57
2.	Closing Penticton-Kelowna gap	5,500 00
3.	Nicola-Spence's Bridge extension	3,500 00
4.	Fairview-Midway extension	6,500 00
5.	Keremeos to Clark's	300 00
	Total	$17,992 32

Revenue.

Present revenue from 'rentals' on Kamloops-Nicola-Coutlee and Lower Nicola line $30 00 per month.

Increased revenue from 'rentals' on same line if exchange be installed at Nicola $ 17 50 per month.

Present revenue from 'rentals' on Nicola-Penticton line with tariff now in force $51 50 per month.

Assured increase in revenue from 'rentals' if exchange be installed at Hedley $112 00 per month.

$81 50 per month. $129 50 per month.

Note 1.

The above revenue does not include receipts from conversations and messages which average $107 per month.

$188 50 per month.

Total monthly revenue $318 00 per month.

Note 2.

The Kelowna-Vernon line has not been long enough in operation to permit of a statement as to its revenue.

Note 3.

If exchanges are installed at Nicola and Hedley the increased revenue in 'rentals' alone is assured, while on the other hand, if exchanges are not put in, 'phones will have to be taken off the line and the meagre revenue of $81.50 will be still smaller, hence the obvious necessity of putting in these exchanges.

EXPENDITURE.

Owing to the present indefinite conditions prevailing over these lines, it is difficult to state exactly what would be the total expenditure of management in order to compare the same with assured revenue shown before, it may, however, be sufficient to say that matters can be so arranged that the revenue will certainly equal

and most probably exceed the expenditure. Following is an approximate estimate of cost of maintenance:—

Superintendent at Kamloops, say	$ 75 00	per month.
Exchange operator at Hedley	40 00	"
Exchange operator at Nicola	40 00	"
Operator at Kelowna	30 00	"
Operator at Vernon	30 00	"
Repairs, monthly, say	75 00	"
Total expenditure	$290 00	"
" revenue	318 00	"
Balance	$ 28 00	"

In conclusion, I beg to recommend that the management of the telephone lines in the districts referred to should be placed in the hands of some one on the ground, one who is well acquainted with the district, the needs of the people living in the same, and the conditions of the country.

With reference to the above, I would wish to respectfully recommend that Mr. C. S. Stevens, of Kamloops, B.C., be placed in charge. From personal observation, and, taking into consideration public opinion throughout the district, this gentleman would be fully qualified to occupy the position as he understands line construction thoroughly, the management and installation of telephones and has a very good knowledge of office work such as is required for the making of reports, the checking of returns and other business connected with the proper management of a telephone line. If this suggestion be acted upon, I believe the department will have reason to congratulate itself upon the acquisition of the services of a very good man.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) J. E. GOBEIL,

Inspector.

PART VI

REPORT OF THE COLLECTOR OF REVENUE

DEPARTMENT OF PUBLIC WORKS.

1904-1905.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, November 18, 1905.

F. GÉLINAS, Esq.,
Secretary, Department of Public Works,
Ottawa.

SIR,—I have the honour of submitting my report for the year ended June 30, 1905.

I have examined the books and accounts of the officers under my control (excepting those of the dock-master at Esquimalt) and it is my pleasant duty to state that, in all cases, the rules laid down by the department for their guidance have been carefully observed by these officers who have faithfully accounted for all revenues collected by them.

During the fiscal year just closed the revenue accrued from public works shows an increase of $4,008.87, being $111,959.77, while for the previous year it was $107,950.90.

The collections also show an increase of $4,815.95 being $111,931.27, while in the preceding year they amounted to $107,115.32.

The revenue accrued from slides and booms was $82,873.97 or $11,542.77 more than in 1903-04. The collections were $82,873.97, or $12,378.35 more than the previous year. The outstanding uncollected dues have decreased by $2,328.32, an amount written off for cause given hereafter.

The graving docks yielded $24,754.30, or $7,690.26 less than in 1903-04.

No tolls were received from the Yamaska and Rivière du Lièvre locks.

From rents, the revenue was $4,331.50, being $297 more than previous year, of this however, $28.50 was written off on account of poverty of tenants, leaving a net increase of $268.50.

Having dealt with the revenue in a general way, I beg to submit the particulars in detail relative to the several services under their respective heads.

SLIDES AND BOOMS.

OTTAWA DISTRICT.

The tolls charged up amounted to $44,652.03 ; $2,895.18 more than in 1903-04.

The number of logs that passed through the works was 4,404,675, or 90,151 more than the previous year.

Of square timber there were 3,372 pieces, being 11,720 pieces less than in 1903-04.

All the revenue accrued in this district during the year just closed was collected.

Of the dues accrued since July 1, 1889, when this department took over the collection, there remains uncollected $8,145.35, full particulars of which will be found in statement No. 2 herewith.

Of the dues accrued prior to July 1, 1889, there remains $56,805.65, all of which should be written off.—See statements Nos. 1 and 3 herewith for particulars.

The accounts for the Ottawa district stand thus :—

Dues accrued during the year 1904-05		$44,652 03
All collected.		
Amount outstanding is as follows :—		
Dues accrued prior to the collection being transferred to this department		56,805 65
Dues of 1889-90	$6,903 05	
" 1890-91	28 42	
" 1892-93	379 80	
" 1896-97	196 71	
" 1903-04	637 37	8,145 35

I would again ask particular attention to the fact that since the department assumed the collection of these dues, of the amount accrued viz., $840,569.47, all but $28.42 absolutely owing to the department has been collected. The remainder above shown as uncollected and aggregating $8,116.93 being composed of Chaudiere boomage, $6,903.05, which should have been written off long ago, and the balance being covered by counter claims, which if my information be correct with regard to them ought to be allowed, except perhaps the item of 1903-04.

It may be proper here to explain that the $2,328.32 written off was a charge for Black river slidage in 1900. A portion of the works was carried away that year and it was proved to the satisfaction of the department that the logs upon which the charge was levied were so much damaged in consequence of the accident, that the loss on them amounted to very much more than the tolls charged against them.

The increases and decreases from the different works were as follows :

Increases.—Petewawa, $4,568.32 ; Black river, $501.58 ; Gatineau, $264.54 and Madawaska, $993.62.

Decreases.—Main Ottawa, $2,184.01 ; Cheneaux Boom, $421.10 ; Coulonge, $684.86 and Dumoine, $142.91.

Again the revenue falls short of the estimated income when the present tariff was imposed, but this can I think be largely attributed to the great number of small logs, formerly left in the woods, being now brought down and utilized. And I may say here that the constant decrease in diameter of the logs brought down accounts for the fact that though the number of pieces increase yet the revenue does not always show a corresponding increment.

Again as the small spruce is now being utilized and as the Doyle rule does not give anything appreciable for logs under 8 inches in diameter, and as all under that diameter is charged by the cord, the same being computed on the cubic contents of each piece : a large quantity of this timber appears in my statements as so many cords of pulp wood, hence the number of logs may appear to be less than it would seem it should be to those who see it passing particular points or are led by newspaper reports.

Herewith are statements in detail :

No. 1.—Statement of amounts outstanding prior to July 1, 1889, uncollected September, 30, 1905.

No. 2.—Statement of dues accrued at Ottawa since July 1, 1889, uncollected September 30, 1905.

No. 3.—Statement of amounts accrued at Quebec, prior to July 1, 1889, uncollected September 30, 1905.

No. 4.—Statement of the number of pieces of square timber, saw logs, &c., which passed through the Ottawa works during the year ended June 30, 1905.

No. 5.—Statement of dues accrued from each of the slides and works in the Ottawa district during the year ended June 30, 1905.

ST. MAURICE DISTRICT.

The revenue from this district was $36,431.21, being $9,109.54 more than the previous year, and the largest in the history of these works.

The number of pieces of timber of all kinds which passed through the works was equivalent to 3,540,383 logs.

All the dues of 1905 were collected.

Since I took charge of this district, in 1892, all the revenue has been collected.

The amount outstanding remains the same as at the close of the year ended June 30, 1904.—namely $14,481.49,—all of which should be written off, for reasons assigned in Statement No. 6, herewith.

As in 1904, the spring was remarkable for paucity of rain, hence an unusual quantity of logs was left in the tributaries of the St. Maurice, yet owing to a fair

supply of water in the main river, it may be said that all the logs that came out into the main stream reached their destination. I anticipated a large increase in the revenue for the current year (1905-06), but owing to the cause above mentioned, whereby nearly a million and a half of logs did not come out, I do not now expect that it will reach a very much larger figure that last year, if even as great.

Owing to favourable circumstances, the booms were all in position in ample time to prevent any logs going out into the St. Lawrence, hence there was little or no loss to the lumbermen on this account.

An alligator tug was placed at Three Rivers in time to assist in puting out the booms last spring, and has proved to be of very valuable assistance in many ways, besides yielding a small revenue while working for the lumbermen, at times when not required for public service ; I hope to see this item much larger next year.

I beg again to urge the necessity for a system of water storage on the great lakes on the upper St. Maurice, the necessity for which is becoming more and more apparent as the years go by, and I am confident that if such a scheme were carried out, a sum sufficient to cover interest and working expenses, would be guaranteed by the large manufacturing interests on this river.

There has been, no doubt, a large outlay on these works during the past few years, but it is to be borne in mind that most of the expense was in renewing booms and works constructed half a century ago and something had to be done to protect the trade which has developed into such an important factor among the manufacturing interests of the country; and moreover there is every indication that the paper industry on the St. Maurice will in a very short time be more than twice as large as it is to-day, the opening up of the upper country by means of railways making the getting in of supplies so much cheaper and more convenient, will it is expected enable at least one large company, whose mills are to be in the vicinity of Three Rivers, to commence operations next year, and the tolls on the timber required to supply this industry will form a large item in the revenue from the St. Maurice works.

The construction of the dam at Grandes Piles will doubtless be a great aid in driving and securing the safety of the logs and with such a system of storing the water as already frequently suggested and the splendid system of works, would make the St. Maurice an ideal stream for handling the material necessary to supply the great paper industries existing and in contemplation.

Hence I look forward to the revenue being, very soon, not only sufficient to cover interest and working expenses but yielding, as time goes on a sum to be credited against the deficits of the last ten years.

TRENT AND NEWCASTLE DISTRICT.

The dues accrued from this district amounted to $1,790.73, all of which was collected.

The total outstanding on June 30, 1905, was $8,323.81, of which $3,521.19, should be written off in accordance with a judgment in the Exchequer Court ; of the remainder, $4,766.92 was paid in October 14, 1905, too late to be included in the accounts for the year just closed, leaving $35.70, which will have to be written off, the debtor being hopelessly insolvent and a very old man.

Full particulars of amount outstanding will be found in statement No. 7 herewith.

GRAVING DOCKS.

ESQUIMALT GRAVING DOCK.

The revenue from this source was $4,632.54, shown in detail, in statement No. 8 herewith, being $5,248.81, less than previous year.

Of the 62 days the dock was used during the year, it was occupied by H. M. vessels for 51 days and the mercantile marine for 11 days.

The withdrawal of the fleet from Esquimalt will be severely felt in loss of revenue from this work.

LÉVIS GRAVING DOCK.

The revenue from this work was $880.53 more than for the previous year, being for 1904-05, $16,454.38. See statement No. 9 herewith.

The dock was occupied for 130 days exclusive of winter months, during which it was held by ss. *Savoy* and *Lord Strathcona*, steamer *Canada* and government dredge *No. 6* and tug *Monitor*.

KINGSTON GRAVING DOCK.

This dock was occupied for only 48½ days exclusive of winter months. The income for the past year was $3,667.38 or $3,321.98 less than in 1903-04. See statement No. 10.

The steamer *Spartan* and government dredge *Nipissing* wintered in this dock.

LOCKS.

As the order in council of July 28, 1903, abolishing the tolls for two years was revived last spring there is no revenue to report from these works.

RENTS.

The collections on this account were as follows :—

From old P. O. building, Victoria, B.C.		$3,792 00
"	Part Toronto Island	1 00
"	Land in Kingston, Ont.	1 00
"	Part graving dock premises, Kingston, Ont.	250 00
"	Part reserve, Victoria Island, Ottawa, Ont.	2 00
"	Reserve, Cap de la Magdeleine, P.Q.	50 00
"	Cape Tormentine, N. B. buildings	1 00
"	Cathedral street property, Montreal, P.Q.	190 50
"	Navy Island, St. Andrew's, N.B.	9 00
"	Beach, Burlington channel	1 00
"	Drill hall site, Sherbrooke, P.Q.	5 50
		$4,303 00

The sum of $28.50 was written off, on account of the poverty of two of the tenants, of the Cathedral street property, Montreal

The following comparative table of Public Works revenue accrued 1904-05 and 1903-04, shows at a glance in what accounts increases and decreases herein reported have occurred :—

	Year, 1904-5.	Year, 1903-4.	Increase, 1904-5.	Decrease, 1904-5.
Slides and Booms.	$ cts.	$ cts.	$ cts.	$ cts.
Ottawa District	44,652 03	41,756 85	2,895 18	
St. Maurice District	36,431 21	27,321 67	9,109 54	
Newcastle District	1,790 73	2,252 68		461 95
(Net increase, $11,542.77)	82,873 97	71,331 20	12,004 72	461 95
Graving Docks.				
Esquimalt, B.C.	4,632 54	9,881 35		5,248 81
Levis	16,454 38	15,573 85	880 53	
Kingston	3,667 38	6,989 36		3,321 98
(Net decrease, $7,690.26)	24,754 30	32,444 56	880 53	8,570 79
Rents	4,331 50	4,034 50	297 00	

The total revenue that passed through my hands during the year ending June 30, 1905, was as follows :—

From Slides and booms	$ 82,873 97
" Graving Docks	24,754 30
" Rents	4,303 00
	$111,931 27

In conclusion I have to acknowledge the uniform courtesy and cheerful assistance accorded me at all times by the officers with whom I have been brought in contact during the year.

I have the honour to be,
Respectfully, sir,
Your very obedient servant,
EDWARD T. SMITH.

No. 1.—STATEMENT of Slidage and Boomage from the Ottawa Slides and Works, accrued prior to July 1, 1889, Outstanding June 30, 1905, and remaining uncollected on September 30, 1905.

By whom due.	Bad and Doubtful Debts.	Chaudière Boomage in Suspense.	Other Slide and Boom Dues Disputed.	Total Outstanding on Sept. 30, 1902.	Year to which Dues Belong.	Remarks.
	$ cts.	$ cts.	$ cts.	$ cts.		
John & Wm. McLean	53 14			53 14	1873	Insolvent.
John Rowan	342 50			342 50	1872-1873	"
Lemieux & Charette	21 30			21 30	1873	"
Taillon & Lapierre	148 10			148 10	1873-1874	"
Mosgrove & McHarry	261 42			261 42	1873-1874	"
W. C. Wells	606 90			609 90	1873-1874	"
Dufresne & McGarity	528 80			528 80	1874-1875	"
Walton Smith	171 46			171 46	1874-1875	"
A. H. Baldwin	3,507 92			3,507 92	1871 to 1874	"
Hon. James Skead	9,807 65			9,807 65	1861, 1863, 1864, 1869, 1875 to 1878	"
Batson & Currier	5,558 70			5,558 70	1875 to 1877	"
A. F. A. Knight	546 30			546 30	1878	"
James Walker	11 25			11 25	1877	"
R. Campbell & Son	1,558 50			1,558 50	1879 to 1881	"
James G. Bryson	73 50			73 50	1886	"
Costello Bros	90 62			90 62	1882	"
N. E. Cormier	428 34			428 34	1888	"
James Yuill	9 29			9 29	1876	Overcharge.
J. & B. Grier	76 84			76 84	1883	"
R. & W. Conroy	95 42			95 42	1882-1883	" reported in return S—38, for March, 1886.
A. & P. White	161 00			101 00	1881	"
B. Caldwell & Son	4 33			4 33	1887	"
J. R. Booth		9,871 93	398 88	10,270 81	1881 to 1888	$398.88, counter claim for damages by the breaking of Coulonge Boom.
Perley & Pattee		8,889 85		8,889 85	1881 to 1888	
The Bronsons & Weston Lumber Co.		8,180 79		8,180 79	1881 to 1888	
Pierce & Co.		462 18		462 18	1888	
G. A. Grier & Co.		1,060 59		1,060 59	1886-1887	*Chaudière boomage. These parties claim that they have maintained these works wholly at their own expense since 1881.
Estate late Levi Young		1,461 20		1,461 20	1881 to 1885	
Wm. Mason		413 85		413 85	1881 to 1888	
Gilmour & Co.		406 27		406 27	1884	
John Rochester		258 88		258 88	1881 to 1883	

J. & G. Bryson..	....	.....	252 20	252 20	1886 ...	Counter claim for damage by breaking of Coulonge Works.
	23,997 28	31,006 54	651 08	55,653 90		

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

EDWARD T. SMITH
Collector of Slide and Boom Dues.

No. 2.—STATEMENT of Slide and Boom Dues accrued from the Ottawa River Works since July 1, 1889, Outstanding on September 30, 1905.

Name.	Year to which Dues belong.	Chaudière Boomage in Suspense.	Ordinary Dues.	Total Outstanding	Remarks.
		$ cts.	$ cts.	$ cts.	
J. R. Booth	1889 90	2,561 69	.....	2,561 69	
The Bronsons & Weston L. Co.	1889 90	2,056 96	.....	2,056 96	Chaudière boomage reported to Council, and referred to Treasury Board, should be written off.
Perley & Pattee	1889 90	1,203 26	.....	1,203 26	
Wm. Mason & Sons	1889 90	167 66	.....	167 66	
Pierce & Co	1889 90	913 48	.....	913 48	
Alex. Fraser Acc. Thos. Stephens	1890 91	.....	28 42	28 42	Legal action taken to recover this.
J. R. Booth	1892 93	.....	379 80	379 80	Retained by Mr. Booth in settlement of an account due him which the Auditor General refuses to pay, as Mr. Booth appears to be in arrears in this and Statement No. 1.
Bryson & Fraser	1896	.....	196 71	196 71	Have counter claim for work done on slide to this amount.
J. R. Booth	1903 04	.....	339 27	339 27	These two parties claim that as a slide on the Petawawa is not now used, no charge should be exacted.
Hawkesbury Lumber Co	1903 04	.....	298 10	298 10	
		6,903 05	1,242 30	8,145 35	

EDWARD T. SMITH,
Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

No. 3.—Statement of Outstanding Slide Dues, Ottawa District, Bonds for which were sent to Quebec for Collection.

Name.	From 1860.	From 1861.	Total.
	$ cts.	$ cts.	$ cts.
Hon. James Skead	245 00	210 00	455 00
James Mair		696 75	696 75
	245 00	906 75	1,151 75

These amounts were uncollected, as the parties claimed damages for loss caused by the Madawaska boom breaking in 1860.

A decision on their claims was not arrived at till August 2, 1869. On the 5th idem Messrs. Skead and Mair were notified that the department could not recognize their claim.

To the best of my knowledge, this decision was never communicated to the collector of slide dues, consequently these accounts remained in abeyance.

Since then both parties died, and I believe both were insolvent at the time of their death.

EDWARD T. SMITH,
Collector of Slide and Boom Dues.

Department of Public Works,
Ottawa, September 30, 1905.

No. 4.—Statement of the number of pieces of Square Timber, Saw-logs, &c., that passed through the Government Slides and Works on the River Ottawa and its tributaries during the fiscal year ended June 30, 1905.

	Pieces.
Square timber	3,372
Saw-logs	4,404,675
Boom and dimension timber	137,780
Cedars	85,369
Railroad ties	636,120
Fence Posts	251,018
Total	5,518,334

Also 16,040.86-100 cords pulp wood
Revenue accrued on the above was $44,652.03.

EWD. T. SMITH,
Collector of Public Works Revenue.

Department of Public Works,
Ottawa, September 30, 1905.

No. 5.—Statement showing the dues accrued on the undermentioned works on the River Ottawa and its tributaries during the fiscal year ended June 30, 1905.

River or other Improvements.	Amount.
Main Ottawa	$ 2,563 84
Cheneaux Boom	7,053 91
River Petewawa	12,399 63
River Madawaska	2,445 20
River Coulonge	5,643 22
River Dumoine	900 57
Black River	6,892 04
Gatineau	6,753 62
	$44,652 03

Amounting to $44,652 03.

EWD. T. SMITH,
Collector of Public Works Revenue.

Department of Public Works,
Ottawa, September 30, 1905.

No. 6.—Statement of Slide and Boom Dues from the St. Maurice Slides and Works outstanding on June 30, 1905, and remaining uncollected on September 30, 1905.

Name.	Year to which Dues belong.	Amount.	Total.	Remarks.
		$ cts.	$ cts.	
George Baptist, Son & Co.	1878	469 95		
" "	1879	2,110 62		
" "	1880	1,696 18		
" "	1881	293 69		Have counter claims for damages to logs caused by the booms not being stretched early enough in the spring of 1878 to prevent the logs going over the chutes.
" "	1882	165 80		
" "	1884	118 50		
" "	1888	4 28		
			4,859 02	These claims were submitted to Special Commissioner, Mr. McDougall, afterwards Judge, who, after hearing the evidence on both sides, recommended that the claims of the parties should be allowed.
Ross, Ritchie & Co	1878	3,072 84		
"	1883	2,173 68		
"	1884	28 96		
"	1886	1 62		
"	1887	4 38		
			5,281 48	
Alex. Baptist	1879		2,116 96	
Wm. Ritchie & Co	1888	779 24		
"	1889	332 11		
			1,111 35	Of this amount $754.20 is claimed to be an overcharge. Insolvent.
Ritchie Bros	1886	413 43		
"	1887	634 71		
			1,048 14	This amount is composed of overcharges in 1886 and 1887 of $842.76 and overpayment in 1884 of $205.38.
G. B. Hall	1890		49 34	Insolvent.
T. E. Normand	1890		42 28	Claims that this balance is an overcharge.
Treffle Biron	1891		0 92	Would cost more to collect than it is worth.
			14,481 49	

To make this balance agree with the Public Accounts, there should be deducted $7.93 over credited Alex. Baptist, and $217.17 added thereto, being $190.40 paid July 23, 1884, and $26.77 over charged in error to Wm. Little, not in any of the collector's returns, which will give balance due September 30, 1894, of $14,690.73.

EDWARD T. SMITH.
Collector of Slide and Boom Dues.

Department of Public Works,
Ottawa, September 30, 1905.

No. 7.—STATEMENT of Slide and Boom Dues accrued from the Newcastle and Trent River Works, outstanding on June 30, 1904, and remaining uncollected September 30, 1905.

Name.	Year to which Dues belong.	Amounts disputed.	Ordinary Dues.	Total.	Remarks.
		$ cts.	$ cts.	$ cts.	
Irwin & Boyd	1881	59 79		59 79	
Thomson & McArthur	1880	52 78		52 78	
Jabez Thurston	1882	12 50		12 50	Insolvent.
McDougall & Ludgate	1879	65 07		65 07	
Bigelow & Trounce	1882 to 1885	216 21		216 21	
R. G. Strickland	1882, '83, '85, '86 and '87	215 08		215 08	
Est. late Geo. Hillard	1877 to 1883 and 1886	354 15		354 15	Dead and estate distributed.
T. G. Hazlett	1881, '82, '84 to '89	885 25		885 25	
J. M. Irwin	1882, '83, '85 to '88	698 45		698 45	According to judgment in Exchequer Court, *re* Boyd *vs.* Smith, these cannot be collected.
D. Ullyot	1881 to 1887	547 68		547 68	
Green & Ellis	1881 to '83, '85, '88 and '89	157 01		157 01	
A. W. Parkin	1884, '85, '88, '90 and '91	65 92		65 92	
The Dickson Estate	1883	137 50		137 50	
Alfred McDonald	1888	40 80		40 80	
John Parkin	1889	13 00		13 00	
Gilmour & Co	1893, '94, '95, 1900, '01, '02, '03		4,766 92	4,766 92	Paid October 14, 1905.
John Dovey	1894, '95, '96		35 70	35 70	Sent to Dept. of Justice for collection.
		3,521 19	4,802 62	8,323 81	

EDWARD T. SMITH,
Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

No. 8.—THE DRY DOCK AT ESQUIMALT, B.C.

STATEMENT of Dues and other Charges collected during the Year ending June 30, 1905.

Name of Vessel Docked.	Tonnage.	Period of Dockage. From	To	Dockage Charges.	Other Charges.	Total.
		1904.	1904.	$ cts.	$ cts.	$ cts.
Str. Caithness	3,503	July 25.	July 27.	511 00	5 40	516 40
H.M.S. Flora	4,360	Sept. 13.	Sept. 15.	130 24		130 24
S.S. Nevadan	4,408	Oct. 3.	Oct. 8.	916 00	9 00	925 00
H.M.S. Grafton	7,500	" 19.	" 24.	348 36		348 36
H.M.S. Bonaventure	4,360	" 24.	Nov. 1.	316 20		316 20
H.M.S. Shearwater	980	Nov. 21.	Dec. 3.	460 95		460 95
		1905	1905			
H.M.S. Egeria	940	Mar. 2.	Mar. 9.	318 39		318 39
Overpaid				0 01		0 01
B.C. Stevedoring Co.		Water supplied			2 40	2 40
S.S. Garonne	3,876	April 3.	April 5.	518 00	5 40	523 40
S.S. Victoria	3,502	May 22.	May 24.	511 00	10 20	521 20
H.M.S. Egeria	940	June 2.	June 8.	345 61		345 61
H.M.S. Shearwater	980	" 14.	" 16.	222 58		222 58
Tug Le Roi		Water supplied			1 80	1 80
	35,349			4,598 34	34 20	4,632 54

EDWARD T. SMITH,
Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

No. 9.—THE DRY DOCK AT LEVIS, QUE.

STATEMENT of Dues and other Charges collected during the Year ending June 30, 1905.

Name of Vessel Docked.	Tonnage.	Period of Dockage. From	To	Dockage Charges.	Other Charges.	Total.
		1904.	1904.	$ cts.	$ cts.	$ cts.
S.S. Gauss	650	June 20..	July 2..	782 50	9 00	791 50
S.S. Verax		Entry Fee		200 00		200 00
S.S. Gauss	650	July 13..	July 15..	365 00	40 60	405 60
S.S. Verax	2,531	" 16..	" 25..	1,206 20	1,200 00	2,406 20
"		" 26..	Sept. 8..	4,427 28	9 00	4,436 28
S.S. Pordenskjold	3,572	Entry Fee		200 00		200 00
"		Oct. 6..	Nov. 6..	3,964 64	44 50	4,009 14
S.S. Bjorgrin	2,792	Entry Fee		200 00		200 00
"		Nov. 15..	Nov. 19..	623 36		623 36
S.S. Canada		Entry Fee		200 00		200 00
S.S. Savoy		"		200 00		200 00
			1905.			
(Wintering)		Nov. 28..	April 25..	100 00	1 00	101 00
S.S. Lord Strathcona (Wintering)		" 28..	" 25..	300 00		300 00
S.S. Canada (Wintering)		" 10..	" 25..	800 00		800 00
Dredge No. 6 and tug Monitor (Winter.)		" 28..	" 25..	400 00	19 46	419 46
Dredge International (Wintering)		" 28..	" 25..	400 00	101 84	501 84
		1905.				
Dredge J. I. Tarte	600	April 27..	May 9	660 00		660 00
	10,795			15,028 98	1,425 40	16,454 38

EDWARD T. SMITH,
Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

No. 10.—THE DRY DOCK AT KINGSTON, ONT.

STATEMENT of Dues and other Charges collected during the Year ending June 30, 1905

Name of Vessel Docked.	Tonnage.	Period of Dockage. From	Period of Dockage. To	Dockage Charges.	Other Charges.	Total.
		1904.	1904	$ cts.	$ cts.	$ cts.
Yacht Lucille	41	Aug. 11..	Aug. 13..	50 00		50 00
Yacht Ramona	57	" 13..	" 14..	20 00		20 00
Str. John Milne	109	" 15..	" 15..	21 80		21 80
Str. Cardinal	237	" 15..	" 15..	47 40		47 40
Tug D. G. Thompson	137	" 23..	" 24..	47 40	5 00	52 40
Govt. dredge Sir Richard	125	Sept. 12..	Sept. 14..	55 50		55 50
Str. John Milne	109	" 29..	" 30..	21 80		21 80
Government steamer Scout	180	" 14..	" 16..	56 00		56 00
" " Reserve	49	" 16..	" 18..	40 00		40 00
Barge Columbia	84	Oct. 10..	Oct. 11..	20 00		20 00
Steam barge King Ben	145	Nov. 2..	Nov. 3..	29 00		29 00
Str. India	976	" 17..	" 18..	158 10		158 10
Str. Hecla	1,110	" 21..	" 23..	238 70		238 70
Str. New Island Wanderer	123	" 23..	" 28..	94 60		94 60
Str. Avon	1,417	" 29..	Dec. 2..	390 08		390 08
Str. Spartan			" 23..	100 00		100 00
			1905.			
"	946	Dec. 13..	April 7..	780 00	10 00	790 00
Dredge Nipissing	105	" 13..	Mar. 13..	280 50		280 50
		1905.				
Tug Trudeau	75	April 13..	April 24..	200 00		200 00
Str. Advance and tug Jessie Hall	1,087	" 25..	" 26..	158 70	11 50	170 20
Str. Resolute	372	" 27..	" 28..	74 40		74 40
Schr. Oliver Mowat	198	" 27..	" 28..	39 60		39 60
SS. Turbinia	1,064	" 28..	" 28..	156 40		156 40
Barge Ceylon	908	May 5..	May 6..	140 80		140 80
Str. Cardinal	237	" 11..	" 14..	97 40	5 00	102 40
Str. Cuba	1,231	" 14..	" 15..	173 10		173 10
Str. Argyle	700	" 16..	" 17..	120 00		120 00
Str. New Island Wanderer	123	June 25..	June 26..	24 60		24 60
	11,945			3,635 88	31 50	3,667 38

EDWARD T. SMITH,
Collector of Public Works Revenue.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, September 30, 1905.

PART VII.

MISCELLANEOUS

ACTS OF PARLIAMENT, PASSED AT SESSION OF 1905, HAVING REFERENCE TO THIS DEPARTMENT.

CONTRACTS LET BY THIS DEPARTMENT.

PROPERTY PURCHASED OR SOLD.

PROPERTY, LEASED TO OR BY THE DEPARTMENT.

CURATOR'S REPORT, NATIONAL ART GALLERY.

NAMES OF CHIEF OFFICERS OF THE DEPARTMENT.

NAMES OF OFFICIALS EMPLOYED ON SLIDES AND BOOMS.

NAMES OF PERSONS employed on GRAVING DOCKS.

NAMES OF ENGINEERS, FIREMEN AND CARETAKERS OF PUBLIC BUILDINGS.

AND THE OFFICIAL CORRESPONDENCE OF THE DEPARTMENT.

FOR THE

FISCAL YEAR ENDED JUNE 30, 1905.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, December 30, 1905.

F. GÉLINAS, Esq.,
Secretary, Department of Public Works,
Ottawa.

SIR,—I have the honour to send you herewith the following statements concerning the transactions of the department during the last fiscal year with respect to contracts and property, and which are required for insertion in the annual report of 1904-05, viz.:—

No. 1.—Statement of contracts let by this department during the fiscal year ended June 30 last.

No. 2.—Statement of property purchased and sold by this department during the same period.

No. 3.—Statement of property leased to and by the said department during the same period ; and

No. 4.—A list of some of the Public Acts of the Parliament of Canada passed at the last session having reference to the department.

I have the honour to be, sir,
Your obedient servant,

J. A. CHASSE,
Law Clerk.

STATEMENTS

SHOWING

1ST.—CONTRACTS LET BY THE DEPARTMENT OF PUBLIC WORKS OF CANADA, FROM JUNE 30, 1904 TO JUNE 30, 1905.

2ND.—PROPERTY PURCHASED OR SOLD BY THE DEPARTMENT OF PUBLIC WORKS DURING THE FISCAL YEAR ENDED JUNE 30, 1905.

3RD.—PROPERTY LEASED TO AND BY THE DEPARTMENT OF PUBLIC WORKS DURING THE FISCAL YEAR ENDED JUNE 30, 1905.

I have the honour to be, sir,

Your obedient servant,

J. A. CHASSE,
Law Clerk.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, December 30, 1905.

No. 1.—CONTRACTS let by the Department of Public Works of Canada from June 30, 1904, to June 30, 1905.

Works.		Names of Contractors.	Date of Contract	Amount.
PUBLIC BUILDINGS.				$ cts.
Nova Scotia.				
Amherst, Public Building.	Supply of coal	Maritime Coal & Ry. Co., Ltd.	Sept. 17, 1904	267 23
Annapolis, Post Office Building	"	The Minudie Coal Co	" 10, 1904	184 88
Antigonish "	"	The Acadia Coal Co	" 7, 1904	94 37
" Construction of Post Office and Customs Building		Rhodes, Curry & Co., Ltd.	June 15, 1905	14,990 00
Arichat Post Office Building.	Supply of coal	The Cape Breton Coal Mining Co	Sept. 12, 1904	73 50
Baddeck Public Building	"	" "	" 12, 1904	127 50
Dartmouth, Post Office Building	"	The Minudie Coal Co	" 10, 1904	93 94
Digby "	"	" "	" 10, 1904	179 35
Guysborough, Public Building	"	The Cape Breton Coal Mining Co	" 12, 1904	157 50
Halifax, Ass't. Rec. Genl's Office	"	James Kenna	" 6, 1904	
" Immigration Building	"	"	" 6, 1904	
" Ass't. Rec. Genl's Office	"	S. Cunard & Co	Nov. 1, 1904	
" Dominion Building	"	The Cape Breton Coal Mining Co	Sept. 22, 1904	367 19
" Examining Warehouse	"	" "	" 22, 1904	177 03
" Immigration Building	"	" "	" 22, 1904	233 20
" "	Alteration and additions to	John MacInnes & Son	Dec. 22, 1904	15,000 00
Kentville, Public Building.	Supply of coal	The Minudie Coal Co	Sept. 10, 1904	263 58
Liverpool "	"	The Cape Breton Coal Mining Co	" 12, 1904	114 75
Lunenburg, Post Office Building	"	John B. Young	" 13, 1904	218 75
New Glasgow "	"	Chas. W. Ives	" 12, 1904	215 17
North Sydney, Public Building	"	The Cape Breton Coal Mining Co	" 12, 1904	208 00
" "	Alterations and additions to	M. MacMillan	Nov. 18, 1904	1,175 00
Pictou, Post Office and Custom House.	Wiring and electric fixtures	De Wit Electric Co	Sept. 21, 1904	945 00
" Custom House.	Supply of coal	The Cape Breton Coal Mining Co	" 12, 1904	158 02
" Post Office Building	"	" "	" 12, 1904	140 87
Springhill "	"	The Cumberland Ry. & Coal Co	" 8, 1904	238 00
Sydney "	"	The Cape Breton Coal Mining Co	" 12, 1904	189 00
" "	"	The Minudie Coal Co	" 10, 1904	
" "	Addition to heating apparatus	Rhodes, Curry & Co., Ltd.	Oct. 14, 1904	1,600 00
" Public Building.	Supply of striking Gurret clock	T. Lighter & Co	Dec. 9, 1904	1,250 00
" Post Office Building.	Fittings to addition	Rhodes, Curry & Co	Mar. 30, 1905	4,475 00
Sydney Mines,	Construction of a P. O. Building	James Reid	Sept. 29, 1904	16,750 00
Windsor, Public Building.	Supply of coal	M. H. Goudge & Son	Aug. 13, 1904	393 10
Yarmouth "	"	L. E. Baker & Co	Sept. 7, 1904	282 50
" "	Additions and alterations to wing of	W. E. Simms	May 2, 1905	3,978 00
Prince Edward Island.				
Charlottetown, Dominion Building.	Supply of coal	The Cape Breton Coal Mining Co	Sept. 12, 1904	558 98
Montague, Public Building	"	Geo. Wightman	" 7, 1904	94 11
Summerside "	"	Robt. T. Holman	" 5, 1904	353 17

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
PUBLIC BUILDINGS—*Continued.*			$ cts.
New Brunswick.			
Bathurst, Post Office. Supply of coal....	G. E. Mercier.....	Sept. 12, 1904	432 35
Campbellton, Public Building—Construction of...	Harquail & Harquail....	" 30, 1904	16,600 00
Chatham " Supply of coal....	Edward Johnson.....	" 8, 1904	359 77
Dalhousie " " "	G. E. Mercier.....	" 12, 1904	275 64
Fredericton " "	Hott, Morrison & Co....	" 12, 1904	243 16
" Drill Hall—Addition to.....	C. J. B. Simmons.....	Dec. 7, 1904	12,955 00
Marysville, Public Building. Supply of coal....	Hott, Morrison & Co ...	Sept. 12, 1904	122 59
Moncton " Tower clock	Z. M. Leger.....	Aug. 3, 1904	675 00
" " Supply of coal ...	The Minudie Coal Co....	Sept. 10, 1904	313 06
Newcastle " "	Byron N. Call	" 5, 1904	420 82
Partridge Island, Quar. Station Construction of hospital	Geo. McArthur.....	Aug. 26, 1904	9,868 00
" " " Detention buildings.....	"	" 26, 1904	16,995 00
" " " Additional work to hospital....	"	Dec. 12, 1904	950 00
" " " Detention bldg. No. 1. Heating apparatus.....	"	March 15, 1905	3,100 00
" " " Detention bldg. No. 2. Heating apparatus....	"	" 15, 1905	3,100 00
St. John, Quarantine Station works.....	P. Campbell & Co.....	Nov. 11, 1904	1,087 00
" Custom House. Supply of coal ..	Vroom & Arnold.....	Sept. 19, 1904	1,703 19
" Post Office building "	The Minudie Coal Co...	" 10, 1904	20 10
" " " " ..	R. P. & W. F. Starr....	" 10, 1904	42 93
" Savings Bank "	" "	" 10, 1904	20 27
" West, Post Office " ...	Vroom & Arnold.....	" 9, 1904	36 00
" City " "	"	" 9, 1904	713 65
" Immigrant Building "	"	" 9, 1904	1,278 75
" Savings Bank "	"	" 9, 1904	237 59
St. Stephens, Public Building "	A. I. Teed Co.....	" 12, 1904	159 60
Sussex " "	Thomas H. Brown	" 3, 1904	375 05
Tracadie, Lazaretto "	Vroom & Arnold.....	Oct. 4, 1904	968 39
Woodstock, Post Office "	W. F. Dibblee & Son....	Sept. 14, 1904	336 41
" Drill Hall—Construction of.....	Williamson Fisher.....	Oct. 25, 1904	31,980 00
Quebec.			
Acton Vale, Public Building. Heating apparatus.	Joseph Bourque....	March 23, 1905	950 00
Aylmer, Post Office building. Supply of coal....	J. G. Butterworth..... ..	Sept. 12, 1904	228 20
Berthierville " " " ...	Lamarche & Boulanger..	" 12, 1904	95 64
Buckingham " " "	McCullough & Co.....	Oct. 5, 1904	118 20
Coaticook, Post Office building. Supply of coal..	B. J. Smith	Sept. 5, 1904	239 67
Drummondville " " ..	The Pensylvania Coal Co	Oct. 6, 1904	160 00
Dundee, Custom House " ..	Allen S. Matthews	Sept. 10, 1904	31 75
Farnham, Public Building " ..	A. B. Comeau & Co.....	" 12, 1904	50 80
Fraserville " " ..	Nap. Dion.....	" 6, 1904	330 00
Granby, Tower Clock..	H. Birks & Sons.....	May 2, 1905	1,102 00
" Public Building. Supply of coal....	P. Phoenix..... ...	Sept. 3, 1904	243 25
Hochelaga " "	Wilson Freres	" 20, 1904	171 50
" " Fitting up the attic .	J. B. Gratton	May 13, 1905	1,302 00
Hull " Supply of coal....	The Hull Coal Co....	Aug. 31, 1904	452 65
Joliette " "	S. Bourgeois.....	Sept. 5, 1904	327 91
Lachine " "	A. G. Evans	" 8, 1904	103 20
Laprairie " "	J. B. H. Beauvais	" 5, 1904	163 81
L'Assomption " "	Louis Desmarais.....	" 5, 1904	213 50
Lévis. Construction of a Post Office Building ...	Joseph Couture..... ..	Feb. 3, 1905	22,000 00
Longueuil. Construction of a Public Building ...	Joseph Bourque	Sept. 28, 1904	10,500 00
Montreal. Supply of 8,000 lineal ft. of piping *re* Postal Pneumatic System	R. McLaren & Co	Feb. 9. 1905	11,600 00
Montreal, Examining Warehouse—Additions, &c., to	J. B. Pauzé & Co....	April 26, 1905	4,500 00

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
PUBLIC BUILDINGS—*Continued.*			$ cts.
Quebec. Concluded.			
Montreal. Examining Warehouse—Boilers	The Underfeed Stoker Co., Ltd	March 25, 1905	2,175 00
Montreal, Examining Warehouse. Supply of coal	A. Baile	Aug. 31, 1904	1,980 00
" Custom House "	"	" 31, 1904	690 57
" Post Office Building "	"	" 31, 1904	889 00
" Revenue Building "	"	" 31, 1904	254 00
Quebec, Iron Foundry, Dom. Arsenal. Elec. wiring	Chs. Vézina	Oct. 31, 1904	975 00
" Immigration Building "	The Slade Elect. Co	May 10, 1905	1,500 00
" Custom House. Supply of coal	A. R. Pruneau & Co	Sept. 1, 1904	46 23
" Immigrant Shed "	"	" 1, 1904	45 50
" St. Roch P. O. Building "	"	" 1, 1904	
" Cullers' Office "	Martin Madden	Aug. 30, 1904	309 50
" Custom House "	"	" 30, 1904	786 90
" Marine Agency "	"	" 30, 1904	513 80
" Examining Warehouse "	"	" 30, 1904	669 86
" Immig. Office "	"	" 30, 1904	226 62
" Post Office "	"	" 30, 1904	688 69
" Gov. General's Quarters "	"	" 30, 1904	666 55
Richmond, Public Building "	J. D. Smith	Sept. 5, 1904	263 28
St. Henri " "	Citizens Coal Co	" 16, 1904	103 66
St. Hyacinthe, Post Office "	T. E. Fee & Son	" 10, 1904	284 34
" Inland Revenue "	"	" 10, 1904	225 20
" Construction of a Drill Hall	Paquet & Godbout	March 25, 1905	50,000 00
" Drill Hall. Timber foundations	"	May 12, 1905	5,708 00
St. Jérome, Post Office Building. Supply of coal	Chs. Godmer	Sept. 7, 1904	255 00
St. John's, " "	Jules Audette	Sept. 7, 1904	102 60
St. Louis du Mile End, Construction of Post Office Building	J. B. Pauzé & Co	Aug. 23, 1904	18,790 00
" " Heating apparatus	"	Feb. 17, 1905	1,422 00
Sherbrooke, Public Building. Supply of coal	Jean Huot	Sept. 22, 1904	446 95
" Post Office. Fittings	Simoneau & Dion	Oct. 25, 1904	640 00
Sorel, Public Building. Supply of coal	Alfred Lavallee	Sept. 3, 1904	326 50
Thetford Mines, Post Office. " "	La Cie Savoie-Guay	Sept. 12, 1904	266 00
" Public Building. Fittings	J. S. Hebert	May 25, 1905	1,185 00
" " Heating apparatus	A. Beauchesne	Oct. 28, 1904	1,125 00
Terrebonne, Construction of Post Office building	E. Paquet	Nov. 25, 1904	11,550 00
Three Rivers, Custom House. Heating and plumbing works	Geo. Morissette	Oct. 20, 1904	1,450 00
" Construction of a Drill Hall	Joseph Bourque & Co	May 1, 1905	52,500 00
" Custom House. Supply of coal	The Three Rivers Coal and Trans. Co	Aug. 31, 1904	42 15
Valleyfield, Public Building. Heating apparatus	T. Bélanger & Co	Dec. 24, 1904	3,975 00
" " Supply of coal	Besner & Chasle	Sept. 12, 1904	335 05
Victoriaville " "	F. Beauchesne	Sept. 9, 1904	170 07
Ontario.			
Alexandria, Public Building. Supply of coal	Angus McDonald.	Sept. 3, 1904	185 07
" Post Office. Fittings	W. G. Row	Feb. 16, 1905	980 00
" Public Building. Heating apparatus	Martel & Langelier	Nov. 19, 1904	890 00
Almonte, Public Building. Supply of coal	Wm. McArthur.	Sept. 3, 1904	202 55
Amherstburg, " "	Falls Bros	Sept. 3, 1904	210 94
Arnprior, Post Office building. "	J. S. Moir	Sept. 10, 1904	411 70
Barrie, Public Building. Supply of coal	J. G. Scott	Sept. 12, 1904	222 25
Belleville, " "	The Downey Coal Co	Sept. 6, 1904	615 00
" " Fixtures	Greenleaf & Son	June 20, 1905	840 00
Berlin, " Supply of coal	C. A. Wilson & Co	Sept. 6, 1905	302 73
" " Fittings	Ruben Bowman.	May 15, 1905	1,908 00
Bowmanville, " Supply of coal	C. A. Wilson & Co	Sept. 6, 1904	243 25
" " Heating apparatus	Wm. Stuart	Aug. 17, 1904	1,950 00
Brampton " Supply of coal	Peaker & Son	Sept. 12, 1904	182 20
Brantford "	C. A. Wilson & Co	Sept. 6, 1904	427 46
" Post Office. Fittings and alterations	The Schultz Bros. Co. Lt.	Nov. 21, 1904	3,295 00

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract	Amount.
PUBLIC BUILDINGS.—*Continued.*			
Ontario—Continued.			$ cts.
Brantford Armoury. Heating apparatus	Chs. Taylor & Co	Dec. 21, 1904	2,600 00
" Drill Hall. Electric wiring	Schultz Bros	April 27, 1905	2,450 00
Bridgeburg, Construction of Post Office, &c. Bld'g	Cutler & Vanderburg	Oct. 3, 1904	15,115 00
Brockville, Post Office. Supply of coal	Central Canada Coal Co.	Sept. 7, 1904	419 75
" " Alterations	Enoch Smith	Feb. 3, 1905	2,138 40
Burford, Construction of an Armoury	Nagle & Mills	Sept. 19, 1904	9,900 00
Carleton Place, Post Office. Supply of coal	Taylor, Bros. & Co	Sept. 12, 1904	155 00
Cayuga, Public Building. "	C. A. Wilson & Co	Sept. 6, 1904	107 20
Cahtham, " "	A. R. Crow	Sept. 6, 1904	286 99
" Construction of a Drill Hall	John Piggott & Sons	Jan'y. 30, 1905	50,905 00
" Armoury, Shooting Gallery and Bowling Alley		May 4, 1905	3,200 00
	" "	Sept. 9, 1904	
" Public Building. Renovation of heating apparatus	Martel & Langelier	Sept. 9, 1904	790 00
Clinton, Public Building. Supply of coal	C. A. Wilson & Co	" "	90 74
Cobourg, " " "	Geo. Plunkett	Sept. 6, 1904	244 15
" " Interior fittings	C. Caruthers	Feb. 17, 1905	1,780 00
" Armoury. Fittings and wiring	D. Booth	April 20, 1905	4,395 00
Cornwall, Post Office. Supply of coal	A. F. Mulhern & Co	Sept. 12, 1904	300 00
Deseronto, " "	The Rathbun Co	Sept. 12, 1904	272 94
Dundas, Public Building. "	Chs. Sturrock	Sept. 2, 1904	53 87
Fort William, " Installation of wires, &c.	C. D. Cole	Nov. 11, 1904	800 00
" " Supply of coal	James Murphy	Sept. 12, 1904	579 00
Galt, " "	John Brownlee & Co	Sept. 10, 1904	223 90
" " Additions to	Archd. McAuslan	June 28, 1905	6,550 00
Gananoque, Custom House. Supply of coal	The Rathbun Co	Sept. 12, 1904	148 40
" Post Office Building. "	" "	Sept. 12, 1904	102 40
Goderich, " " "	Wm. Lee	Sept. 10, 1904	277 55
Guelph, " " "	C. A. Wilson & Co	Sept. 6, 1904	228 17
" " " Heating apparatus	Stevenson & Malcolm	Sept. 17, 1904	2,595 00
" " " Works	John Kennedy	Feb. 20, 1905	4,135 00
Hamilton, " " Supply of coal	The Rogers Coal Co	Sept. 16, 1904	
" Weight and Measures and Gas Inspection Office	" "	Sept. 16, 1904	1,156 75
Hawkesbury. Construction of Public Building	R. Cameron	Jan. 18, 1905	11,500 00
Ingersoll, Public Building. Supply of coal	Nagle & Mills	Sept. 12, 1904	227 50
" " "	C. A. Wilson & Co	Sept. 6, 1904	5 50
Kingston, Custom House. "	P. Walsh	Sept. 6, 1904	180 90
" Post Office. "	"	Sept. 6, 1904	268 00
" Stable for "B" Battery	D. S. Booth	April 8, 1905	5,980 00
" " for R.M.C.	H. W. Watts	May 9, 1905	6,990 00
Lindsay, Public Building. Supply of coal	C. A. Wilson & Co	Sept. 6, 1904	203 16
London, " "	" "	Sept. 6, 1904	700 51
" Custom House. "	" "	Sept. 6, 1904	672 09
" Armoury. Fittings	Sullivan & Langdon	Aug. 6, 1904	9,300 00
" Drill Hall. 4 bowling alleys	" "	Aug, 18, 1904	2,495 00
" Armouries. Wiring & electric fixtures	The Electrical Cons. Co of London	Jan. 14, 1905	4,750 00
London, Post Office. Alterations and additions	Wm. Tytler	Apl. 11, 1905	27,290 00
Napanee, Public Building. Supply of coal	F. E. Van Luven	Sept. 14, 1904	135 00
Niagara Falls " "	H. E. Thomas	" 12, 1904	156 90
Orangeville " "	James R. Lathwell	" 12, 1904	170 88
Orillia " "	The Sarjeant Co	" 12, 1904	167 50
Oshawa. Construction of a Post Office, etc., b'd'g.	Wm. J. Trick	" 2, 1904	20,500 00
Ottawa, Experimental Farm. Supply of coal	McCullough & Co	Aug. 30, 1904	1,197 28
" Public Buildings "	John Heney & Son	June 9, 1905	54,471 59
" West Block. Passenger Elevator	The Fensom Elevator Co. Ltd	July 14, 1904	7,800 00
" Print'g Bureau. Extra story to addition to	Doran & Devlin	" 24, 1904	19,600 00
" Parliament Build'g. Bithulitic Pavement.	Warren Bituminous Paving Co	Sept. 6, 1904	Per s. y. 2 25
" Construction of Archives Building	W. H. McGillivray	" 29, 1904	49,857 0
" Post Office. Columns for restoration of.	Alex. Fleck Ltd	" 25, 1904	1,231 0

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract	Amount.
PUBLICS BUILDINGS—*Continued*			$ cts.
Ontario—Concluded.			
Ottawa Construction of Royal Victoria Museum.	Geo. Goodwin	Dec. 28, 1904	950,000 00
" " Mint	Sullivan & Langdon	Jan. 5, 1905	263,194 00
" Printing Bureau. Electric light wiring and fittings	P. E. Marchaud & Co	Mar. 20, 1905	3,575 00
" Government House. Supply and filling the ice house	J. O. Charlebois & Co	" 25, 1905	P. bl. 1x1x 3 ft. 0 18
" Royal Victoria Museum. For drain	Geo. Goodwin	" 16, 1905	4,500 00
" Western Block. Additions and alterations to		Apl. 10, 1905	75,000 00
" Printing Bureau. Additional story	Doran & Devlin	May 12, 1905	43,200 00
" Transit House. Construction of	Wm. H. McGillivray & P. Labelle	" 15, 1905	14,789 00
" Observatory. Steel fittings	The Office Speciality Mfg. Co. Ltd	" 16, 1905	4,356 50
" Post Office. Stone carving	W. Dawson & J. Crosbie	Apl. 2, 1905	2,175 00
" Observatory. Steel cases	The Office Speciality Mfg. Co. Ltd	June 3, 1905	2,254 00
" Public Buildings. Steel cases	The Eclipse Mfg. Co. Ltd	" 12, 1905	4,370 00
Paris, Public Building. Supply of coal	Geo. E. Taylor	Sept. 9, 1904	132 57
Pembroke, " "	Mackie & Ryan	" 2, 1904	294 00
Peterborough, Post Office "	C. A. Wilson & Co	" 6, 1904	239 39
" Custom House "		" 6, 1904	196 29
" Public Building. Alterations to	D. Belleghem	Apl. 6, 1905	4,925 00
Petrolea, Post Office. Supply of coal	C. A. Wilson & Co	Sept. 6, 1904	168 29
Picton, Public Building "	Lake & Killip	" 13, 1904	214 50
Port Arthur " "	Louis Walsh Coal Co	" 7, 1904	200 00
" " Supply of water	Corporation of Port Arthur	Jan. 30, 1905	Per an. 37 00
Port Colborne " Fittings	J. E. Cutler	Mar. 30, 1905	675 00
Port Hope " Supply of coal	Brown & Co	Sept. 12, 1904	248 00
Prescott, Post Office "	James Buckly	" 5, 1904	225 25
" Custom House		" 5, 1904	103 50
Rat Portage, Post Office. Supply of coal	D. E. Adams	" 14, 1904	468 18
St. Catharines, Post Office "	C. A. Wilson & Co	" 6, 1904	184 50
" Drill Hall. Mastic Asphalt floor	Sullivan & Langdon	May 12, 1905	3,609 00
St. Thomas, Post Office. Supply of coal	C. A. Wilson & Co	Sept. 6, 1904	325 00
Sandwich. Construction of Post Office	Geo. A. Proctor	June 12, 1905	11,484 00
Sarnia, Post Office. Supply of coal	C. A. Wilson & Co	Sept. 6, 1904	29 25
Sault Ste Marie, Post Office. Heating apparatus.	McPhail, McCarty & Wright	Dec. 7, 1904	4,200 00
Smith's Falls, Public Building. Supply of coal	Thomas Graham	Sept. 12, 1904	192 50
Stratford, Post Office "	Angus Johnson & Co	" 13, 1904	
" Construction of an armoury	Nagle & Mills	Nov. 25, 1904	47,793 00
Strathroy, Public Building. Supply of coal	R. Nicholson	Sept. 12, 1904	175 65
Toronto Junction, Post Office. Heating apparatus.	Martel & Langelier	" 2, 1904	1,425 00
" " Fittings	T. P. Wright & Son	Nov. 21, 1904	2,936 00
" " and Custom House.			
" " Wiring and fixtures.	Jones & Moore Electric Co. Ltd	Oct. 20, 1904	650 00
Toronto. Supply of 36,000 lineal ft. piping for Postal Pneumatic System	R. MacLaren & Co	Feb. 9, 1905	52,200 00
Toronto, Postal Station "C". Works caretakers' quarters	The Carlyle Construction Co. Ltd	" 24, 1905	2,350 00
Trenton, Public Building. Supply of coal	Chs. Crowe	Sept. 9, 1904	196 35
Walkerton, Post Office "	C. A. Wilson & Co	" 6, 1904	212 83
Windsor " "		" 6, 1904	53 50
" " "	J. & T. Hurley	" 3, 1904	429 00
" " New entrance and steps and approaches to	Excelsior Granite & Marble Works	Apl. 25, 1905	2,000 00
Woodstock, Public Building. Supply of coal	The McIntosh Coal Co	Sept. 9, 1904	257 36
" Armoury. Construction of	Nagle & Mills	Nov. 25, 1904	47,935 00

SESSIONAL PAPER No. 19

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
PUBLIC BUILDINGS—*Concluded.*			$ cts.
Manitoba.			
Brandon, Post Office. Supply of coal	R. Purdon	Sept. 11, 1904	961 00
" Experimental Farm. Supply of coal	"	" 11, 1904	236 88
Portage LaPrairie, Pub. Build'g "	D. E. Adams	" 14, 1904	517 33
Virden. Construction of an Armoury	W. H. Ireland	Dec. 14, 1904	6,449 00
Winnipeg, Post Office. Supply of coal	Harstone Bros	Sept. 13, 1904	2,213 77
" Immigration Hall. Supply of coal	D. E. Adams	" 14, 1904	622 01
" Hospital "	"	" 14, 1904	115 43
" Custom House "	"	" 14, 1904	733 49
" Immg. Office and shed "	"	" 14, 1904	
" Indian Off. and T.C. Off. "	"	" 14, 1904	
" Examining Warehouse "	"	" 14, 1904	523 70
" Immg. Hospital. Heating apparatus	Cotter Bros.	Aug. 15, 1904	1,678 70
" Construction of Immigration Build'g	The Manitoba Construction Co.	" 23, 1904	147,000 00
" Immgrat. Hall. Heating apparatus	Cotter Bros.	Oct. 10, 1904	3,100 00
" Post Office Building. Excavation to	W. F. Lee	Nov. 22, 1904	4,993 00
" Construction of a Magazine	J. & J. McDiarmid	Dec. 14, 1904	4,000 00
" Immigration Building, fire-proof floors.	Expanded Metal and Fire Proofing Co., Ltd	Jan. 13, 1904	15,750 00
" Construction of a Post Office Building	Kelly Bros. & Co	Feb. 24, 1905	529,485 00
" Construction of a Military Store Building	J. & J. McDiarmid	May 16, 1905	23,925 00
North-west Territories.			
Calgary, Post Office. Supply of coal	C. S. Lott	Oct. 22, 1904	369 52
" Immigrant Shed "	"	" 22, 1904	80 63
" Court House "	"	" 22, 1904	604 05
" Registry Office "	"	" 22, 1904	
Carnduff, Court House "	Fairbairn Bros	Sept. 23, 1904	126 85
Edmonton "	J. Milner & Co	" 20, 1904	
" Dominion Land "	"	" 20, 1904	180 00
Indian Head, Experimental Farm "	Windatt & Co	" 6, 1904	264 00
" " "	Geo. Thompson	" 15, 1904	80 00
Lethbridge, Post Office	The Alberta Ry. and Coal Co	" 15, 1904	97 50
Macleod, Court House "	A. F. Grady	" 7, 1904	561 09
" Custom House "	"	" 7, 1904	509 78
Moose Jaw, Court House "	R. Beard	" 12, 1904	182 22
" Construction of Public Building	Pat. Navin	Jan. 13, 1905	22,913 00
Moosomin, Court House. Supply of coal	T. H. Bristow	Sept. 16, 1904	147 88
" " "	Windatt & Co	" 6, 1904	268 31
Prince Albert. Construction of a Public Building	C. LeMoine & F. R. Fortin	Jan. 21, 1905	79,725 00
Red Deer, Court House. Heating apparatus	Morrison & Johnston	May 2, 1905	1,435 00
" " Supply of Coal	Smith & Gaetz	Sept. 13, 1904	
" Dominion Land Office "	"	" 13, 1904	
Regina " " "	Whitmore Bros	" 7, 1904	430 67
" Court House "	"	" 7, 1904	698 75
" Post Office "	"	" 7, 1904	325 70
" " "	The Smith & Ferguson Co.	" 24, 1904	38 10
" Court House "	" "	" 24, 1904	37 55
" Dominion Land "	" "	" 24, 1904	52 50
Wolseley, Court House "	Windatt & Co	" 6, 1904	380 18
Yorkton "	The Alberta Ry. and Coal Co	" 9, 1904	
" Immigrant Shed "	" "	" 9, 1904	
British Columbia.			
Nanaimo, Public Building. Heating apparatus	The Vanstone Heating and Plumbing Co., Ltd.	June 20, 1905	1,650 00
Nelson. Construction of corral and dipping vat	John Burns	April 5, 1905	1,058 00
Rossland, Armoury. Heating apparatus	W. G. Gillett	May 11, 1905	1,597 00

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contract.	Amount.
HARBOURS AND RIVERS.			$ cts.
Nova Scotia.			
Breton Cove, construction of boat landing wharf	Reid & Archibald	July 14, 1904	5,885 00
Devil's Island, construction of breakwater	"	June 19, 1905	5,980 00
Freeport, construction of public breakwater	J. E. & H. Bigelow	" 22, 1905	13,700 00
Garabus, extension to breakwater	Heney & Smith	May 4, 1905	19,009 00
Glace Bay, improvements in the harbour of	The Dominion Coal Co., Ltd	Oct. 19, 1904	25,000 00
Main à Dieu, breakwater	Reid & Archibald	Aug. 27, 1904	8,925 00
North Gut, St. Ann's wharf	Duncan Guthro	Sept. 29, 1904	1,850 00
Port Greville, extension to breakwater	T. P. Charleson	Dec. 12, 1904	11,460 00
Skinner's Cove, channel protection works	Wm. J. Landry	Jan. 5, 1905	10,965 00
Prince Edward Island.			
Grand River, extension to wharf	McNeill, Arsenault & Pembroke	Dec. 27, 1904	3,155 00
McPherson's Cove, wharf	Thomas Campbell	" 28, 1904	8,999 00
New Brunswick.			
Campbellton, wharf	C. J. B. & S. D. Simmons	Oct. 11, 1904	35,300 00
Dalhousie, deep water wharf	J. B. McManus, Ltd	Aug. 1, 1904	42,000 00
Dipper Harbour, breakwater	J. J. Lyons & J. White	Sept. 21, 1904	45,485 00
*Durham, wharf	John & Joseph Goulette	June 20, 1905	17,700 00
Quebec.			
Anse à la Grosse Roche, wharf	Boivin & Coté	Aug. 16, 1904	9,500 00
Chambord, wharf	A. Du Tremblay	Sept. 22, 1904	9,250 00
Deschambault, landing pier	Théophile Bernier	Dec. 16, 1904	15,840 00
Grondines, wharf	J. Alphonse Lemay	March 24, 1905	14,500 00
New Richmond, landing wharf	J. Burns & T. P. Charleson	July 8, 1904	14,400 00
Percé, extension to pier	J. J. Lyons & J. White	Oct. 31, 1904	19,441 20
Repentigny, landing pier	Lachance Bros	Aug. 10, 1904	10,975 00
St. Alexis, wharf	Geo. Perron	Jan. 4, 1905	17,485 00
St. Fidele, wharf (close-faced timber)	Tremblay & Savard	Oct. 26, 1904	15,266 00
St. Gedeon les Iles, wharf	A. Beaulieu	July 13, 1904	8,990 00
St. Jean des Chaillons, landing pier	Chas. Pagé	Sept. 21, 1904	33,233 75
St. Siméon, approach to isolated crib	Nap. Trudel	Oct. 28, 1904	19,062 67
Ontario.			
Amherstburg, dredging of channel	The Weddell Dredging Co	Dec. 9, 1904	27,600 00
Barry's Bay, wharf and approaches	John D. McRae	Aug. 9, 1904	4,433 00
Bracebridge, crib wharf	John Baker	Oct. 21, 1904	8,200 00
Echo Bay, pile wharf with stone causeway approach	Wm. Birmingham	Dec. 14, 1904	17,476 00
Goderich, breakwater	Battle & Conlon	Aug. 8, 1904	74,000 00
Meaford "	Kastner & Porter	" 23, 1904	59,800 00
Parry Sound, pile wharf	A. A. McDonald	April 17, 1905	8,925 00
Petawawa, pile wharf with approach	Chs. LeMoine & F. Fortin	Dec. 26, 1904	6,197 00
Stokes' Bay, wharf and road approach	Kastner & Porter	Sept. 29, 1904	8,500 00
Thessalon, wharf of cribwork with stone and ground approach	O'Boyle Bros	July 14, 1904	19,000 00
North West Territories.			
Battleford, concrete piers and abutments	John Foley	April 4, 1905	38,426 00

*Contract assigned to J. & A. Culligan.

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Concluded.*

Works.	Names of Contractors.	Date of Contract.	Amount.
HARBOURS AND RIVERS—*Concluded.*			$ cts.
Vessels, dredges and plant.			
Construction of steel hopper barge for dredge *Cape Breton*	I. Matheson & Co., Ltd.	Aug. 8, 1904	10,500 00
Construction of steel tow boat for Fraser River	The Victoria Machinery Dept. Co., Ltd	Aug. 8, 1904	24,750 00
Construction of a two, yard dipper dredge	The Bertram Engine Works Co., Ltd	Aug. 17, 1904	49,350 00
Construction of an hydraulic dredge	The Polson Iron Works	Aug. 18, 1904	138,560 00
Construction of a snag boat for Fraser River	Wm. Turpel	Aug. 19, 1904	22,500 00
Construction of a hopper barge for dredge *Cape Breton*	The Pictou Foundry & Machine Co	Sept. 25, 1904	9,850 00
Construction of steel stone lifter	The Bertram Engine Works, Ltd	March 25, 1905	36,985 00
Construction of two tubular boilers, for Examining Warehouse, Montreal	Jos. Thibault	June 10, 1905	5,763 00

J. A. CHASSÉ,
Law Clerk.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, December 30, 1905

No. 2.—STATEMENT of properties purchased or sold by the Department of Public Works during the Fiscal Year ended June 30, 1905.

Date of Conveyance.	Vendors.	Purchasers.	Description of Property.	For what Purpose.	Area.	Price.
1904.						$ cts.
July 2	Amédée Sabourin	His Majesty	Lot No. 17, Hawkesbury, Ont	Site Public building	100 x 90 ft	3,000 00
" 2	Théophile Pelletier	"	Lot No. 100, Notre Dame du Portage, P.Q	Wharf	9 perches 84 ft	100 00
" 4	P. E. I. Government	Federal Government	Lot No. 24, Rustico Harbour, P.E.I.	Breakwater		1 00
" 12	J. R. Doucet	His Majesty	Land, Grand Etang, N.S.	Wharf		1,000 00
" 14	W. C. Mohaffy et ux	"	Part of Lot 16, Bracebridge, Ont	"	$\frac{50}{100}$ acre	675 00
" 20	D. Morrison et al	"	Lots Nos. 1, 2, 3, North Gut, St. Anns, N.S	"	18,606 ft	50 00
" 22	W. T. O'Brien	"	Lot 8, block 20, Forty Mile-Yukon	Telegraph office		300 00
" 22	Bart. Briere	"	Land, Township Hope, Paspebiac, P.Q	For public road	3,250 ft	1 00
" 28	Rev. J. C. Farthing et al	"	Lots Nos. 9 and 10, East side Graham St., Woodstock, Ont.	Public building		6,120 00
" 30	Chas. J. Conn	"	Bill of sale, Steam Yacht, *Speedy the Second*	Government purposes	115 ft. l. 20 ft. w.	35,000 00
Aug. 2	Hercule Arcand	"	Land, Champlain, P.Q.	Site for wharf	30,638 ft	1,000 00
" 3	Alexis Elsleiger	"	Land, Maria Cape, P.Q.	Road and approach	50,000 ft	1 00
" 4	R. Leblanc	"	Land, Abrams River, N.S.	Wharf	5,950 sq. ft.	60 00
" 4	G. C. Dessaulles	"	Lots, St. Hyacinthe, P.Q.	Drill shed		7,500 00
" 15	R. C. Episcopal Corporation of Iona, N.S.	"	Land, Iona N.S.	Wharf	12,000 sq. ft.	500 00
" 19	T. G. Agnew	"	Lots 14 and 15, block J. Lot 78, Prince Albert, N.W.T	Public building		1,000 00
" 20	Corporation Anse aux Gascons	"	Land, L'Anse aux Gascons, P.Q.	For approach	40,000 ft	1 00
Sept. 3	Mary Rasconi	"	Land at Pierreville, P.Q	Approach to wharf	31 x 295 ft	600 00
" 5	J. A. Piuze	"	Land, Mille Vaches, P.Q.	Wharf		2 00
" 7	His Majesty	H. P. Baird	Land at Woodstock, N.B.	Armoury		1,250 00
" 9	C. S. Boone	His Majesty	Bill of Sale, goods and chattels of Dredge No. 8, etc			6,400 00
" 12	British American Land Co	"	Lots Nos. 1432, 4, 5, etc., Sherbrooke, P.Q.	Drill hall	99,175	6,000 00
" 17	La Fabrique de Mille Vaches	"	Land at Mille Vaches, P.Q.	Approach to wharf	24 ft. wide	1 00
" 23	P. Verreault	"	Part of Lot 23 'E' and 23 'B' Grand Mechins, P.Q.	Wharf	2 rods 21 perch	50 00
" 27	V. J. Slattery et al	"	Land, S. side, Gabarus Bay, N.S	Breakwater	25,780 sup. ft	60 00
Oct. 15	Certificate of Title	"	Lots 33, 34, 35, 6, 7, 8, 9, 40, block 31, Brandon, Man.	Drill hall		3,100 00
" 15	J. H. Anderson	"	Land at Musquodaboit, N.S.	Wharf	4,950 sq. ft.	1 00
" 17	A. J. Henderson	"	Land, Township McLean, Toronto, Ont.	Public wharf		1 00
" 20	J. W. Sutherland et al	"	Part lot 10 W. side Hughson St., Hamilton, Ont	Site for drill hall		5,000 00
" 22	A. P. Ross	"	Lot No. 87, Ste. Cécile du Bic, P.Q.	Wharf	32 arpents x 30 ft.	800 00
Nov. 10	Geo. Dalziel	"	Lot No. 88, Montmagny, P.Q.	Public building	56 x 60 ft.	2,000 00
" 13	Richard O'Leary	"	Right of way, sewer, Richibucto, N.B.			105 00
" 21	H. W. Bagnall et al	"	Two lots at Gabarus, N.B.	Wharf	36,850 ft	150 00

"	28	S. Sigurbjornsson	"		N. half Sec. 15, T. 21 Arnes, Man	"	$2\frac{316}{1000}$ acres	1 00
"	28	T. Thorvaldsson	"		S. " 15, T. 21 "	"	$1\frac{8000}{1000}$ acres	1 00
"	30	R. J. Mawhinney et ux.	"		Land, Mace's Bay, N.B	"	$\frac{52}{100}$ acre	250 00
"	30	S. A. Carpenter and husband	"		Lots 9 and 10, W. side Hughson St, Hamilton, Ont	Drill hall		4,000 00
"	30	Geo. Case et ux	"		Part lot 10, James St., Hamilton, Ont	"		12,000 00
"	30	Ann Gould	"		Lot 9, E. side James St., Hamilton, Ont	"		4,500 00
Dec.	6	P. A. Choquette	"		Lot No. 4438a, Grande Allée, Quebec	Public building	9,240 ft	20,436 00
"	16	Gideon Robertson	"		Lots 3, 4, 5, 6, 7, 8, block 15, Vancouver, B.C	"	156 x 120 ft	52,000 00
"	30	Wm. Carroll et ux	"		Lot 10, James St., Hamilton, Ont	Drill hall		3,500 00
"	31	B. McCartin et ux	"		Lots 8, 9, 10, 11, E. side Yonge St., Toronto, Ont	Postal station 'B'		14,237 96
1905.								
Jan.	5	H. Duchesne	"		Land, North Plantagenet, Ont., N.W. corner half lots	Wharf		600 00
"	13	P. P. Morrison	"		Lot 55, Launching McPherson's Cove, P.E.I	"		70 00
"	13	L. McPherson et ux	"		Lot 55, McPherson's Cove, P.E.I	"		140 00
"	21	H. M. Molson	"		Lots, St. Catherine St., Montreal	Postal station	4, 547½ ft	47,743 00
"	25	J. J. Moore & A. S. Deguire es—qualité	"		Lots S.W. side Cathedral St., Montreal	"	98 x 37 ft	12,000 00
"	26	F. S. McDonald	"		Land, Souris East, P.E.I	Public building		1,000 00
Feb.	2	H. H. Groff et ux	"		Lot 'P', s. half lot 'O', easterly 45 ft., lot 'Q', block 95, Simcoe, Ont	"		2,050 00
"	10	P. C. Bosdet	"		Land West Arichat Harbour, N.S	Wharf	26,324 sq. ft	700 00
Feb.	20	Mrs. L. V. Filteau	"		Part of lot 1^{251} of Cadastre, River du Loup, P.Q	Wharf	$1\frac{27}{42}$ acres	9,191 00
"	27	The Lake Manitoba Quarry & Transportation Co., Ltd	"		Bill of sale, tug *Carberry*	Government purposes		9,500 00
Mch.	6	A. J. Henderson	"		Land, Township McLean, Baysville, Ont	Wharf	$\frac{4}{100}$ of acre	1 00
"	8	The Supply Co., Ltd	"		Land at Canning, N.S	"	$\frac{85}{100}$ "	1 00
"	10	Episcopal Corporation of Chicoutimi	"		Land, Chicoutimi, P. Q	Site public building	24,000 sup. ft	2,400 00
"	20	M. H. Ewing	"		Peel Head Bay, P.Q., strip of land	Wharf	33,928 sq. ft	1,500 00
"	30	A. F. Healy	"		Part of lot 5, Sandwich, Ont	Public building	5,471 sq. ft	1,700 00
April	1	James Burke *et ux*	"		Lot 208, Stratford, Ont	"		2,750 00
"	1	Frs. A. Myers	"		" "	"		2,850 00
"	1	W. A. Moore	"		Part of lot 209, Stratford, Ont	"		2,500 00
May	1	H. Bonenfant	"		Bill of sale, tug *Nora*	Government purposes		1,500 00
"	1	John Culligan *et ux*	"		Land at Durham, N.B	Wharf	$\frac{22}{100}$ of acre	1 00
"	3	M. A. Kavanagh	"		Lot 731, Cathedral St., Montreal, P.Q	Postal station		25,000 00
"	15	E. J. Covey	"		Land, Indian Harbour, N.S	Approach to wharf	1,850 ft	50 00
"	15	J. A. Campbell	"		Land at New Richmond, P.Q	Wharf	50 x 100 ft	1 00
"	16	F. A. Hough	"		Water lot, Amherstburg, Ont	"	$\frac{68}{100}$ of acre	250 00
"	16	W. C. Kennedy	"		Westerly part of lot 7, Amherstburg, Ont	"	1 acre	500 00
"	22	Andrew H. Green	"		Westerly part of lots 1, 3, Amherstburg, Ont	"	$1\frac{58}{100}$ acres	500 00
"	22	M. Barrett	"		Water lot, Amherstburg, Ont	"	$\frac{65}{100}$ of acre	500 00
"	27	Corporation of Peterborough	"		Lot No. 3, Murray St., Peterborough, Ont	Armoury		1 00
"	27	" "	"		Lots 4, 5, 6, N. Murray St., Peterborough, Ont	"		10,000 00

No. 2.—STATEMENT of properties purchased or sold by the Department of Public Works, &c.—*Continued.*

Date of Conveyance.	Vendors.	Purchasers.	Description of Property.	For what Purpose.	Area.	Price.
1905.						$ cts.
May 31	Isabella Doran	His Majesty	Lot No. 108, North Bay, Ont	Public building	66 x 132	8,000 00
June 3	Mrs. A. A. Paint	"	Lot of land, Port Hawkesbury, N.S.	Wharf	47,568 sup. ft	2,950 00
" 5	J. L. Belliveau	"	Middle East Pubnico, N.S., lots	"	$\frac{46}{100}$ of acre	100 00
" 7	Mary E. Park	"	Water lot, Amherstburg, Ont	"	$1\frac{2}{100}$ acres	300 00
" 10	Geo. Mackenzie *et ux.*	"	" Skinner's Cove	"	87,834 ft	150 00
" 12	S. Pettypiece	"	" Amherstburg, Ont	"	$\frac{68}{100}$ of acre	250 00
" 17	Chs. Boucher *et ux*	"	Land, Benoit Cove, St. George's Bay, N.S.	Boat landing	30,683 sup. ft	1 00
" 19	J. F. Cairns	"	Lots 30, 31, 32, Saskatoon, N.W.T	Public building	S. 60 ft. of lots	2,000 00

No. 3. STATEMENT of Properties leased to and by the Department of Public Work during the Fiscal Years ended June 30, 1905.

Date of Lease.	Lessors.	Lessees.	Property Leased.	For what Purposes.	Duration of Lease.	Annual Rental.
1904.						$ cts.
July 20	Alp. Laberge	His Majesty	First flat, 4 rooms, Montmagny, P.Q.	Post office	1 year	276 00
" 25	His Majesty	C. C. Robinson	Wooden structure, Cape Tormentine, N.B.	Private enterprise	5 years	1 00
Aug. 24	T. Carpentier	His Majesty	Building, St. Catherine St. E., Montreal	Government purposes	5 "	600 00
Dec. 31	H. Cormier	"	Building at Mutton Bay, P.Q.	Telegraph office	Good pleasure	75 00
1905.						
Jan. 1	Lewis Estate	"	Premises at Vancouver, B.C.	Customs & Ex. warehouse.	2½ years	200 00 per mo.
" 14	A. E. Brown	"	Building, St. Antoine St., Montreal	Immig. purposes	15 months	1,277 70 whole period.
" 16	Merchants' Bank of Canada	"	Messuage at London, Ont	Government purposes	5 years	500 00 p. annum.
" 31	His Majesty	The Hamilton Cataract Power, Light & Traction Co., Ltd.	Land, Burlington Channel	Steel towers	21 "	1 00
Feb. 11	"	C. L. McKeen	Land at St. Andrews Island, N.B.	Private enterprise	During pleasure	9 00 p. annum.
Mar. 1	C. T. Daykin	His Majesty	Upper floor, warehouse, Lacombe, N.W.T.	Immig. purposes	10 months	13 00 per mo.
" 15	Chs. Sandison	"	Top flat of building, Edmonton, N.W.T.	Court House	1 year	70 00 "
" 20	R. N. Slater *et al*	"	Building No. 172, Wellington St., Ottawa.	N.W.M.P. store	5 years	1,140 00 p. annum.
April 1	R. Dittrick	"	Building at Leduc, N.W.T.	Immig. purposes	8 months	10 00 per mo.
June 23	His Majesty	A. Rousseau	Land at Calumet Slide, Ottawa River.	Mill purposes.	21 years	25 00 p. annum.
" 28	R. A. G. Bell	His Majesty	Lease of three rooms, Calgary, N.W.T.	Inspector's office	1 year	420 00 "

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, Dec. 30, 1905.

J. A. CHASSÉ,
Law Clerk.

LIST

OF SOME OF THE

ACTS OF PARLIAMENT

PASSED AT THE SESSION OF 1905

HAVING REFERENCE TO THE

DEPARTMENT OF PUBLIC WORKS OR WORKS UNDER ITS CHARGE

List of some of the Public Acts of the Parliament of Canada, passed at the First Session of the Tenth Parliament, closed by Prorogation on the Twentieth day of July, 1905, and having reference to the Public Works Department or works under its charge (4-5 Edward VII.)

Subject.	Full Title of the Statute.	Chapter.	Page in Statute Book.
Sums granted to His Majesty for the financial years ending respectively June 30, 1905, and June 30, 1906, and the purposes for which they are granted.	An Act for granting to His Majesty certain sums of money for the public service of the financial years, ending respectively June 30, 1905, and June 30, 1906.....	2	37
Respecting tenders for works.—Government contracts.	An Act respecting contracts for Government works.....	7	109
Respecting awarding of contracts.	An Act to amend the Public Works Act.....	32	177

J. A. CHASSE,
Law Clerk.

Department of Public Works,
Ottawa, Decemeber 30, 1905.

NATIONAL ART GALLERY

CURATOR'S REPORT

FOR THE FISCAL YEAR ENDED JUNE 30, 1905.

NATIONAL ART GALLERY,

OTTAWA, January 4, 1906.

FRED. GÉLINAS, Esq.,
Secretary, Department of Public Works,
Ottawa.

SIR,—I have to report that the following pictures have been purchased by the government for the National Art Gallery of Canada, during the fiscal year 1905 :—

'Mothers' Love' by Paul Peel—for two thousand five huundred dollars ($2,500).

'Indian Running Rapids' by Krieghoff—for three hundred and fifty dollars ($350).

'Autumn Scenery' by Krieghoff—for three hundred and fifty dollars ($350).

Water Colour by O'Brien—One hundred dollars ($100).

'Street scene in Edinburg' by Verner—One hundred and thirty dollars ($130).

'Rainy day" by Jose Weiss—Sixteen hundred dollars ($1,600).

Portrait of Chief Justice Armour by E. Weyby Grier—for seven hundred and fifty dollars ($750).

During the year, fourteen thousand three hundred and sixty-eight visitors registered.

I have the honour to be, sir,
Your obedient servant,

L. FENNINGS TAYLOR,
Curator, National Art Gallery.

NAMES OF THE CHIEF OFFICERS

OF THE

DEPARTMENT OF PUBLIC WORKS

WITH

DATES OF APPOINTMENT, ETC., FROM 1841 TO 1905.

NAMES OF THE CHIEF OFFICERS.

The names with the dates of the appointment, &c., of the principal Officials of the Department of Public Works, from 1841 to 1905.

Names.	Capacity or Office.	Date of Appointment. Served. From	To
Under Statute 4-5 Vic., Cap. 38.			
CORPORATION BOARD OF WORKS.			
Killaly, Hon. H. H.	Chairman		
Daly, Hon. D.			
Harrison, S. B.	Members	Dec. 29, 1841	Oct. 3, 1844
Sullivan, R. B.			
Davidson, J., Esq.			
Begly, Thomas A.	Secretary	Aug. 17, 1841	
Keefer, Samuel.	Chief Engineer	" 17, 1841	
Rubidge, F. B.	Architect and Assistant Chief Engineer	Dec. 15, 1841	
NEW BOARD OF WORKS.			
Killaly, Hon. H. H.	Chairman.		
Daly, Hon. D.			
Draper, Hon. W. H.	Members	Oct. 4, 1844	June 8, 1846
Morris, Hon. W.			
Papineau, Hon. D. B.			
Under Statute 9th Vic., Cap. 37, &c.			
Robinson, Hon. W. B.	Chief Commissioner	June 22, 1846	March 10, 1848
Taché, Hon. E. P.	"	March 11, 1848	Nov. 26, 1849
Chabot, Hon. J.	"	Dec. 13, 1849	March 31, 1850
Merritt, Hon. W. H.	"	April 8, 1850	Feb. 11, 1851
Bourret, Hon. J.	"	Feb. 12, 1851	Oct. 27, 1851
Young, Hon. John.	"	Oct. 28, 1851	Sept. 22, 1852
Chabot, Hon. J.	"	Sept. 23, 1852	Jan. 26, 1855
Lemieux, Hon. F.	"	Jan. 27, 1855	Nov. 25, 1857
Alleyn, Hon. C.	"	Nov. 26, 1857	Aug. 1, 1858
Holton, Hon. L. H.	"	Aug. 2, 1858	" 6, 1858
Sicotte, Hon. L. V.	"	" 7, 1858	Jan. 10, 1859
Rose, Hon. John.	"	Jan. 11, 1859	June 12, 1861
Cauchon, Hon. Jos.	Commissioner	June 13, 1861	May 23, 1862
Tessier, Hon. U. J.	"	May 24, 1862	" 27, 1863
Drummond, Hon. L. T.	"	" 28, 1863	July 23, 1863
Laframboise, Hon. M.	"	July 24, 1863	March 29, 1864
Chapais, J. C.	"	Mar. 30, 1864	June 30, 1867
Casgrain, Hon. Chas. Eus.	Second Commissioner	July 9, 1846	Feb. 29, 1848
Cameron, Hon. M.	Assistant Commissioner	March 11, 1848	" 1, 1850
Wettenhall, James, Esq.	"	Feb. 2, 1850	April 16, 1850
Bourret, Hon. Jos.	"	April 17, 1850	Feb. 11, 1851
Killaly, Hon. H. H.	"	Feb. 12, 1851	May 6, 1859
Keefer, Samuel.	Deputy Commissioner	May 6, 1859	March 7, 1864
Trudeau, Toussaint.	"	March 8, 1864	May 29, 1868
Begley, Thos. A.	Secretary	Feb. 10, 1841	Oct. 31, 1858
Trudeau, Toussaint.	"	Dec. 13, 1859	March 7, 1864
Braun, Frederick.	"	March 8, 1864	July 1, 1867
Page, John.	Chief Engineer	Oct. 31, 1873	Oct. 1, 1879

Names.	Capacity or Office.	Date of Appointment. Served. From	To
Under Statute 31 Vic., Chap. 12.			
McDougall, Hon. Wm	Minister	July 1, 1867	Dec. 7, 1869
Langevin, C.B., Hon. Hector L	"	Dec. 8, 1869	Nov. 6, 1873
Mackenzie, Hon. Alexander	"	Nov. 7, 1873	Oct. 16, 1878
Tupper, C.B., K.C.M.G., Sir Charles	"	Oct. 17, 1878	May 19, 1879
Langevin, C.B., K.C.M.G., Sir Hector L.	"	May 20, 1879	Aug. 11, 1891
Smith, Hon. Frank	Acting Minister	Aug. 14, 1891	Jan. 10, 1892
Ouimet, Hon. Joseph Aldric	Minister	Jan. 11, 1892	April 30, 1896
Desjardins, Hon. Alphonse	"	May 1, 1896	July 12, 1896
Tarte, Hon. J. Israël	"	July 13, 1896	Oct. 21, 1902
Sutherland, Hon. James	"	Nov. 11, 1902	May 3, 1905
Hyman, Hon. Charles S	"	May 22, 1905	
Trudeau, Toussaint	Deputy Minister	" 29, 1868	Oct. 1, 1879
Baillairgé, G. F	"	Oct. 4, 1879	Dec. 31, 1890
Gobeil, A., I.S.O	"	Jan. 1, 1891	
Braun, Frederick	Secretary	July 1, 1867	Sept. 30, 1879
Chapleau, S	"	Oct. 1, 1879	Nov. 4, 1880
Ennis, F. H	"	Nov. 5, 1880	Jan. 13, 1885
Gobeil, A., I.S.O	"	Jan. 23, 1885	Dec. 31, 1890
Roy, E.F.E	"	" 1, 1891	" 31, 1900
Gelinas, Fred	"	June 8, 1901	
McPherson, D. A	Assistant Secretary	Jan. 18, 1891	Apr. 11, 1893
Desrochers, Rodolphe Charles	"	" 8, 1896	
Page, John	Chief Engineer	July 1, 1868	Oct. 1, 1879
Perley, H. F	"	Nov. 25, 1880	July 10, 1891
Coste, Louis	"	July 26, 1892	March 18, 1899
Lafleur, E. D	"	Jan. 7, 1905	
Scott, Thos. S	Chief Architect	May 26, 1871	Oct. 30, 1881
Fuller, Thomas	"	Oct. 31, 1881	June 30, 1897
Ewart, David, I.S.O	"	Nov. 2, 1897	

NAMES

OF THE

OFFICIALS EMPLOYED ON THE SLIDES AND BOOMS OF CANADA

ON JUNE 30, 1905

WITH

DATES OF APPOINTMENT, SALARIES, ETC.

OFFICIALS EMPLOYED ON THE SLIDES AND BOOMS.

STATEMENT showing the Names, Dates of Appointment, Salaries, &c., of persons employed on the various Slides and Booms, on June 30, 1905.

Name.	Date of Birth.	Position.	Where employed.	Date of Appointment.	Salary.	Remarks.
Collector of Slide and Boom Dues.					$ cts.	
E. T. Smith	Nov. 26, 1846	Collector	Ottawa	July 1, 1889	1,900 00 a year	Date of first appointment to Crown timber office, Ottawa, June 23, 1864. Clerk in Dept. of Inland Rev., July 1, 1870, to June 30, 1889. Transferred to civil list, with rank of first class clerk, January 5, 1892.
F. X. Gagné	Sept. 23, 1859	Clerk	"	Dec. 16, 1897	1,095 00 "	Entered the service Aug. 13, 1889.
James Steen	June 17, 1830	Boatman	"	July 12, 1889	60 00 a month	Employed during the season of navigation for 8 months each year. Date of first appointment, May, 26, 1861. Timber counter, Ottawa, for Dept. of Inland Revenue, Jan. 7, 1884, to June 30, 1889.
J. Brassard			"	March 1, 1901	60 00 "	Employed during the season of navigation, for 8 months each year.
Saguenay District.			"			Saguenay district slides abandoned by authority of O.C., dated Feb. 5, 1896 (No. 168,740).
St. Maurice District.						
L. P. Dallaire	June 11, 1866	Paymaster	Three Rivers	May 1, 1898	66 66 a month	
Jos. Pagé	July 7, 1845	Boom master	M'th of St. Maurice	Dec. 10, 1879	75 00 "	
Jos. Dick	April 15, 1848	Asst. boom master	Three Rivers	April 21, 1898	75 00 "	
H. Bourassa	April 15, 1859	Boom keeper	Ste. Flore	Dec. 2, 1906	45 50 "	
Moïse Masson	Dec. 29, 1845	Boom master	Grandes Piles	April 17, 1898	75 00 "	
N. Lymburner	July 22, 1885	"	Shawenigan Falls	July 1, 1895	75 00 "	
A. Paquin	June 3, 1855	"	Ste. Flore	May 2, 1901	75 00 "	
Ottawa District.						
G. P. Brophy	Feb. 24, 1846	Superintendent	Ottawa	July 6, 1873	2,500 00 a year	*Ottawa Rivers Works*—In addition to the above officers, &c., there are employed during the running season, one foreman on slide at $1.50 and one assistant foreman at $1.25 a day; also 25 to 30 labourers at $1 to $1.40 a working day.
J. Kent	Jan. 28, 1864	Accountant	"	Oct. 4, 1904	1,400 00 "	
J. C. Scott	June 27, 1865	Asst. engineer	Ottawa	April 1, 1889	5 00 a day	
S. E. Smith	May 25, 1869	Clerk	"	Nov. 17, 1904	2 00 "	
Wm. Cain	April 22, 1860	Messenger	"	Jan. 1, 1892	1 50 "	

Pierre St. Pierre	Mar. 13, 1853	Deputy slide master.	Carillon	June 1, 1897	1 40	"	Actively employed about 7 months. Oversees repairs in winter.
D. Noonan	June 17, 1840	Boom master.	Gatineau	Mar. 21, 1878	500 00	a year	" "
J. Soulière	Nov. 8, 1829	Deputy slide master.	Chaudière	1878	3 00	a day	" "
P. D. Chêne	May 6, 1843	"	Hull	June 14, 1899	1 50	"	Employed about 6 months.
W. A. Shirreff	Oct. 27, 1842	"	Chats	April 26, 1898	1 50	"	Oversees repairs in winter.
John Harvey	May 22, 1831	Slide master	Arnprior	July 12, 1882	2 50	"	Actively employed about 7 months.
Joseph McCrae	Mar. 26, 1869	Boom master	Springtown	May 15, 1880	25 00	a month	Employed about 3 months during season of navigation.
Patrick Barry	" 27, 1858	Slide master	High Falls	Mar. 10, 1888	1 50	a day	Employed 5 months during season of navigation. Oversees repairs in winter.
Duncan McLaren	Jan. 7, 1860	Deputy slide master.	Portage du Fort	Sept. 7, 1881	456 25	a year	" " "
N. Rochon	April 2, 1879	"	Black River	Mar. 1, 1900	480 00	"	" " "
Wm. Selkirk	May 9, 1849	"	Lower Petawawa	Jan. 19, 1900	2 00	a day	" " "
R. Jennings	April 28, 1843	"	Upper Petawawa	June 2, 1905	2 00	"	
Wm. Thompson	May 3, 1843	"	Mountain	Oct. 10, 1879	1 25	"	" 6 mos. " "
S. Moorhead	" 3, 1851	"	Calumet	Mar. 1, 1901	1 25	"	" 6 to 7 mos. " "
John Mullin	July 27, 1851	"	Coulonge	April 10, 1899	1 50	"	" 4 mos. " "
T. Castello	June 13, 1851	"	Des Joachims	Mar. 1, 1904	300 00	a year	" " "
J. F. McGuire	Dec. 16, 1842	"	Dumoine	May 1, 1897	2 00	a day	Employed 3 months during season of navigation. Will inspect works when required.
Jas. Carey		In charge	Cedar Lake Dam	April 1, 1901	2 00	"	
J. Malboeuf	Nov. 13, 1844	Deputy slide master.	Crooked Chute	" 3, 1905	2 00	"	
A. H. Johnson	" 28, 1839	"	Chenaux	1865	2 50	"	Paid during season of navigation, 7 mos.
Newcastle District.							
S. Clegg	Oct. 16, 1859	Superintendent	Peterborough	Mar. 1, 1901	800 00	a year	
G. H. Giroux	Feb. 6, 1858	Clerk, Supt's office.	"	" 1, 1880	400 00	"	Receives $600 a year from Department of Railways and Canals.
W. T. Junkin	Nov. 2, 1867	Slide master	Fenelon Fall	Nov. 15, 1896	100 00	"	$250 a year as lock-master, Dept. R. & C.
R. T. Hill	Aug. 13, 1848	"	Buckhorn	July 1, 1891	100 00	"	Receives $150 a year from Department of Railways and Canals.
Hamilton Johnston	Aug. 20, 1847	"	Heeley's Falls	" 15, 1892	200 00	"	
John Dinwoodie	May 21, 1837	"	Lakefield	June 20, 1893	150 00	"	Receives $240 a year from Department of Railways and Canals.
Richelieu District.							
C. Choquette		Boom master	Beloeil Station	July 26, 1897	100 00	"	
Burlington Channel Swing Bridge.							
Wm. Omand	July 6, 1837	Bridge attendant.	Burlington	Sept. 19, 1896	600 00	"	
W. Hopkins	June 1, 1846	" assistant	"	July 1, 1902	1 50	a day	Employed 9 months.
H. Lampman	Dec. 14, 1863	" "	"	Sept. 8, 1902	1 50	"	"
Jas. Eustice	Feb. 27, 1872	" "	"	" 19, 1896	1 50	"	"

STATEMENT showing Names, &c., of persons employed on various works—*Concluded.*

Name.	Date of Birth.	Position.	Where employed.	Date of Appointment.	Salary.	Remarks.
Yamaska Lock.						
O. Mineau	July 4, 1844	Lock keeper	Yamaska	" 1, 1885	75 00 a month	Employed 9 months.
H. Lambert	Aug. 20, 1844	"	"	July 1, 1897	40 00 "	"
Rivière du Lièvre Lock.						
Hugh R. Gorman	Sept. 20, 1842	Lock master	Rivière du Lièvre	April 15, 1897	180 00 a year	
Charles Brazeau	Dec. 23, 1862	Labourer	"	Mar. 3, 1902	35 00 a month	Employed 8 months.
Rivière St. Louis Feeder.						
Julien Monpetit		Gate keeper	Rivière St. Louis	May 11, 1903	10 00 "	

JOS. VINCENT.

NAMES

OF

PERSONS EMPLOYED ON THE VARIOUS GRAVING DOCKS

ON JUNE 30, 1905,

WITH

DATES OF APPOINTMENT, SALARIES, ETC.

GRAVING DOCK EMPLOYEES.

STATEMENT showing the Names, Dates of Appointment, Salaries, &c., of persons employed on the various Graving Docks, June 30, 1905.

Name.	Position.	Where Employed.	Date of Appointment.	Salary.	Remarks.
Esquimalt Graving Dock, British Columbia.				$ cts.	
John Devereux	Dockmaster	Esquimalt	Sept. 17, 1887	166 66 a month	
John Jeffcott	Engineer	"	Jan. 4, 1901	100 00 "	
F. N. Jones	Assistant engineer	"	" 8, 1901	80 00 "	
A. D. Grieves	Carpenter	"	Dec. 1, 1887	80 00 "	
W. Young	Labourer	"	June 1, 1901	50 00 "	
J. Stock	"	"	July 1, 1894	50 00 "	
Chas. Jordan	Stoker	"	" 1, 1901	60 00 "	
G. Springer	"	"	April 1, 1903	60 00 "	
J. Young	Night watchman	"	June 1, 1903	50 00 "	
Lévis Graving Dock.					
Alf. Samson	Dockmaster	Lévis	Feb. 15, 1900	1,300 00 a year	
W. Macdougal	Mechanical engineer	"	June 1, 1888	75 00 a month	
T. Després	Asst. mechanical engineer	"	July 21, 1901	60 00 "	
Narcisse Lemelin	Fireman	"	June 1, 1888	40 00 "	
Kingston Graving Dock.					
F. S. Rees	Dockmaster	Kingston	April 1, 1897	1,000 00 a year	
Robert McLeod	1st engineer	"	July 1, 1892	75 00 a month	
Wm. Geoghegan	Fireman	"	" 1, 1892	45 00 "	
C. Staley	Watchman	"	" 1, 1892	45 00 "	

JOS. VINCENT.

LIST

OF

ENGINEERS, ENGINEMEN, FIREMEN AND CARETAKERS

EMPLOYED IN THE

PUBLIC BUILDINGS THROUGHOUT THE DOMINION ON JUNE 30, 1905

DATES OF APPOINTMENT, SALARIES, ETC.

ENGINEERS AND CARETAKERS' PUBLIC BUILDINGS.

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at Dominion Public Buildings on June 30, 1905.

Place.	Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time employed each Year.	Yearly Salary.
						$ cts.		$ cts.
Amherst.....N.S.	Post office	J. H. Chapman	Jan. 1, 1846	Caretaker	Sept. 1, 1900	33 33	12 months	400 00
Antigonish	Public building	Angus McDonald	Nov. 1, 1834	"	June 1, 1905	33 33	12 "	400 00
Annapolis	Post office and custom house	John McKay	Oct. 26, 1847	"	April 1, 1891	33 33	12 "	400 00
Arichat	Public building	Mrs. G. DeRoch		"	May 5, 1905	12 50	12 "	150 00
Baddeck	"	D. F. McKenzie	May 20, 1848	"	Jan. 21, 1899	20 83	12 "	250 00
Dartmouth	"	I. C. Henley	Dec. 11, 1846	"	May 22, 1894	20 83	12 "	250 00
Digby	"	F. Dennison	Nov. 8, 1841	"	Mar. 14, 1902	33 33	12 "	400 00
Halifax	Dominion building	Richard Power	Aug. 15, 1834	Engineer	Oct. 1, 1871	62 50	12 "	750 00
"	"	J. DeYoung	Dec. 8, 1860	Fireman	Nov. 28, 1904	50 00	8 "	400 00
"	"	J. F. Sullivan	April 16, 1866	Caretaker	July 1, 1892	33 33	12 "	400 00
"	"	W. H. Gray	Nov. 26, 1848	Watchman	Sept. 10, 1891	39 00	12 "	468 00
"	Drill hall	John Crowell	Feb. 26, 1852	Engineer	Dec. 13, 1901	50 00	8 "	400 00
"	Armouries	R. Morrison	Mar. 26, 1857	Fireman	Mar. 4, 1903	50 00	8 "	400 00
"	Examining warehouse	M. O'Neil	Dec. 30, 1850	Caretaker	Oct. 1, 1897	37 50	12 "	450 00
"	Immigrant building	John Oxley	April 17, 1856	Fireman	Feb. 2, 1897	50 00	12 "	600 00
Kentville	Public building	W. Hiltz	" 4, 1864	Caretaker	Nov. 14, 1900	33 33	12 "	400 00
Liverpool	"	James Clements	June 5, 1835	"	June 27, 1900	33 33	12 "	400 00
Lunenburg	"	J. E. Hebb	Nov. 3, 1833	"	" 7, 1895	25 00	12 "	300 00
New Glasgow	Post office	J. A. Mutch	Dec. 13, 1840	"	Oct. 3, 1901	33 35	12 "	400 00
North Sydney	Public building	Alex. Green	July 16, 1825	"	" 1, 1897	33 33	12 "	400 00
Pictou	Post office and custom house	Jas. Arbuckle	Feb. 18, 1836	"	Dec. 20, 1896	41 66	12 "	500 00
Springhill	Post office	J. A. Watt	Sept. 5, 1849	"	" 1, 1903	33 33	12 "	400 00
Sydney South	Post office and custom house	Mrs. M. Keefe	Jan. 4, 1850		Jan. 13, 1904	33 33	12 "	400 00
Truro	" " "	Alex. P. Smith	Mar. 17, 1837	Caretaker	April 1, 1897	33 33	12 "	400 00
Windsor	Post office	J. A. Mosher	Nov. 16, 1841	"	Feb. 13, 1899	33 33	12 "	400 00
Yarmouth	Public building	W. H. Whallen	Dec. 23, 1841	"	Mar. 1, 1900	33 33	12 "	400 00
Charlottetown.....P.E.I.	Dominion building	Wm. J. Fraser	Jan. 1, 1836	" & engineer	April 3, 1894	33 33	12 "	400 00
"	"	Geo. Walker	Aug. 28, 1826	Messenger	Jan. 19, 1875	41 67	12 "	500 00
"	"	M. A. Allan	" 1, 1855	"	" 24, 1898	45 83	12 "	550 00
"	"	Angus McKenzie	Mar. 12, 1856	Watchman	Nov. 1, 1896	45 00	12 "	540 00
Montague	Public building	M. Peardon	" 15, 1837	Caretaker	May 1, 1901	13 33	12 "	160 00
Summerside	Dominion building	A. MacSween	Sept. 25, 1835	"	Sept. 1, 1897	33 33	12 "	400 00
Bathurst.....N.B.	Post office	S. P. Achey	Aug. 18, 1873	"	Jan. 1, 1903	33 33	12 "	400 00

Chatham	N.B.	Post office	C. Johnston	May	18, 1856	Caretaker	Mar.	27, 1895	25 00	12	months		300 00
Carleton, St. John,	"	"	James R. Reid	Aug.	15, 1823	"	Oct.	1, 1889	8 33	12	"		100 00
Dalhousie	"	"	Wm. Gould	Jan.	1, 1853	"	Nov.	26, 1890	33 33	12	"		400 00
Fredericton	"	"	L. Yerxa	Dec.	18, 1843	"	July	1, 1900	33 33	12	"		400 00
Marysville	"	"	G. W. Foster	Feb.	2, 1836	"	Dec.	23, 1903	12 50	12	"		150 00
Moncton	"	"	E. B. Hicks	Jan.	11, 1832	"	Jan.	11, 1886	33 33	12	"		400 00
Newcastle	"	"	Patrick Keating	Mar.	13, 1840	"	Oct.	23, 1886	33 33	12	"		400 00
Richibucto	"	"	J. Murray	Aug.	16, 1839	"	Feb.	1, 1904	33 33	12	"		400 00
St. John	"	Custom House	Neil J. Morrison	July	25, 1858	Eng. & caretaker	April	27, 1894	60 00	12	"		720 00
"	"	"	Christopher White	Nov.	20, 1844	Fireman	Nov.	9, 1885	50 00	12	"		600 00
"	"	"	James A. Paul	Aug.	1, 1837	Caretaker	Oct.	13, 1891	41 67	12	"		500 00
"	"	Post office	James Wolfe	Mar.	10, 1850	Engineer	Dec.	1, 1893	55 00	12	"		660 00
"	"	"	Edward Haney	Feb.	22, 1849	Hoist attendant	Nov.	27, 1882	50 00	12	"		600 00
St. Stephen	"	"	Samuel Topping	April	2, 1839	Caretaker	May	25, 1887	33 33	12	"		400 00
Sussex	"	"	Mrs. N. Dryden	June	21, 1840	"	Mar.	26, 1901	25 00	12	"		300 00
Woodstock	"	"	Charles Trafton	Jan.	20, 1839	"	May	1, 1897	33 33	12	"		400 00
Aylmer	P.Q.	"	A. Bourgeau	"	23, 1870	"	April	9, 1904	8 33	12	"		100 00
Buckingham	"	"	T. F. Bisson	May	23, 1848	"	Feb.	3, 1903	10 00	12	"		120 00
Coaticook	"	Public building	Israel Baldwin	Nov.	16, 1839	"	June	27, 1889	33 33	12	"		400 00
Drummondville	"	"	A. Paré	April	27, 1842	"	"	5, 1902	25 00	12	"		300 00
Granby	"	"	J. A. Beauchemin	May	1, 1862	"	May	12, 1903	25 00	12	"		300 00
Fraserville	"	Post office	W. D. Raymond	Jan.	7, 1876	"	April	14, 1905	25 00	12	"		300 00
Hochelaga	"	"	J. H. Brown	Oct.	7, 1851	"	Mar.	27, 1902	16 66	12	"		200 00
Hull	"	" &c	J. T. Madore	Dec.	1, 1843	"	"	8, 1900	12 50	12	"		150 00
Joliette	"	"	A. Ratel	"	29, 1845	"	Sept.	1, 1897	33 33	12	"		400 00
Lachine	"	"	P. O. Robert	Sept.	7, 1846	"	Jan.	26, 1899	8 33	12	"		100 00
Laprairie	"	"	Jos. Brisson	Nov.	11, 1869	"	Nov.	22, 1901	12 50	12	"		150 00
L'Assomption	"	"	E. Arbour	Dec.	8, 1850	"	July	1, 1904	12 50	12	"		150 00
Montreal	"	Dominion building	J. T. Murphy	May	6, 1865	Foreman engin'r.	Mar.	2, 1903	100 00	12	"		1,200 00
"	"	"	Ed. Lanctot	April	14, 1837	Caretaker	Dec.	3, 1898	41 67	12	"		500 00
"	"	Examining warehouse	M. Boyer	Feb.	18, 1848	Fireman	Mar.	4, 1882	50 00	12	"		600 00
"	"	"	Art. Lesieur	June	22, 1868	Caretaker	April	18, 1905	45 00	12	"		540 00
"	"	"	Jos. Furgues	May	15, 1871	Fireman	Nov.	2, 1904	45 00	12	"		540 00
"	"	"	Jos. Langevin	Mar.	10, 1850	"	Oct.	18, 1904	45 00	12	"		540 00
"	"	"	G. Labelle	May	14, 1871	Hoist attendant	Sept.	12, 1904	50 00	12	"		600 00
"	"	"	S. McGarry	June	15, 1873	"	"	12, 1904	50 00	12	"		600 00
"	"	"	J. Neville	Mar.	18, 1870	"	"	12, 1904	50 00	12	"		600 00
"	"	"	H. Marchand	Sept.	18, 1849	"	Dec.	2, 1888	50 00	12	"		600 00
"	"	"	E. Guernon	Dec.	25, 1868	"	Oct.	25, 1904	50 00	12	"		600 00
"	"	"	A. Drouin	June	14, 1868	"	Nov.	28, 1904	50 00	12	"		600 00
"	"	"	Ad. Desjardins	Sept.	3, 1859	Cleaner	June	30, 1904	45 00	12	"		540 00
"	"	"	F. Nadon	June	15, 1847	"	Dec.	15, 1902	48 00	12	"		576 00
"	"	Post office	F. Green	Oct	4, 1837	Engineer	Jan.	1, 1885	60 00	12	"		720 00
"	"	"	S. N. Nickle	Dec.	25, 1871	Mech. elect'n	Mar.	1, 1894	70 00	12	"		840 00
"	"	"	F. X. Lefebvre	"	13, 1859	Asst. "	June	28, 1905	55 00	12	"		660 00
"	"	"	I. Trudeau	Jan.	22, 1863	Caretaker	Oct.	1, 1902	50 00	12	"		600 00
"	"	"	Oscar Renaud	Feb.	19, 1862	Elevator man	Sept.	10, 1898	50 00	12	"		600 00
"	"	"	Art. Forget	July	25, 1867	"	Dec.	15, 1893	50 00	12	"		600 00
"	"	"	L. Brault	Dec.	29, 1854	"	Sept.	1, 1901	50 00	12	"		600 00
"	"	"	A. Bourassa	June	1, 1857	Freight hoist at.	Aug.	4, 1893	50 00	12	"		600 00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at the Dominion Public Buildings on June 30, 1905—*Continued.*

Place.		Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time employed each Year.	Yearly Salary.
							$ cts.		$ cts.
Montreal	P.Q.	Post Office	C. Vadeboncœur	May 17, 1842	Freight hoist at	Feb. 6, 1864	50 00	12 months	600 00
"	"	"	J. Dulrisac	Feb. 2, 1863	Messenger	Dec. 15, 1893	2 00 p.d.	12 "	730 00
"	"	Inland revenue	Louis St. Jean	Sept. 17, 1840	Fireman	" 1, 1892	50 00	12 "	600 00
"	"	Custom house	C. Daudelin	June 19, 1843	Caretaker	July 16, 1892	37 50	12 "	450 00
"	"	"	H. Valiquette	Dec. 30, 1871	Carpenter	Feb. 1, 1904	52 00	12 "	624 00
"	"	Custom house and ex. wareh.	B. Lajeunesse	Nov. 20, 1861	Fireman	Nov. 23, 1896	50 00	12 "	600 00
"	"	Drill hall and armoury	J. Gagnier	April 20, 1867	Engineman	Feb. 14, 1899	45 00	12 "	540 00
"	"	Drill Hall	J. Doherty		Fireman	Dec. 15, 1903	45 00	8 "	360 00
Quebec	"	Examining warehouse	D. P. Kennedy	Feb. 9, 1865	Engineer	April 1, 1897	75 00	12 "	900 00
"	"	"	T. P. McLaughlin	Aug. 25, 1871	Fireman	July 26, 1892	53 33	12 "	640 00
"	"	Cullers office	James O'Neil	" 15, 1861	"	Aug. 1, 1894	45 00	12 "	540 00
"	"	Custom office	John R. Mountain	Nov. 1, 1848	"	Nov. 10, 1888	45 00	12 "	540 00
"	"	Post office	J. Roy	Feb. 25, 1836	Caretaker	Sept. 1, 1897	58 33	12 "	700 00
"	"	"	F. J. Cooper	July 8, 1858	Fireman	June 25, 1895	55 00	12 "	660 00
Peribonca	"	Immigration building	E. Roy	Dec. 14, 1877	Caretaker	Oct. 1, 1902	25 00	12 "	300 00
Roberval	"	" "	J. B. Carbonneau	Aug. 12, 1864	"	Nov. 20, 1901	25 00	12 "	300 00
Rimouski	"	Post office	A. Lepage	Feb. 7, 1866	"	Jan. 1, 1901	12 50	12 "	150 00
Richmond	"	Public building	H. Desmarais	July 14, 1869	"	May 7, 1898	25 00	12 "	300 00
Sherbrooke	"	"	O. Desève	Aug. 6, 1848	"	April 2, 1898	33 33	12 "	400 00
Sorel	"	Post office	C. Robitaille	Jan. 22, 1 48	"	Sept. 1, 1897	40 00	12 "	480 00
Saint Henri	"	"	A. C. A. Bissonnette	May 25, 1858	"	Mar. 4, 1895			
Saint Hyacinthe	"	Public building	F. X. Tétrault	Nov. 8, 1846	"	Aug. 5, 1892	33 33	12 months	400 00
"	"	Inland revenue	E. Clapin	April 9, 1844	"	July 19, 1904	33 33	12 "	400 00
Saint Jean	"	Post office	L. Forrant	Jan. 21, 1849	"	April 14, 1897	29 16	12 "	350 00
Saint Jérôme	"	Public building	J. Savard	Oct. 24, 1859	"	Sept. 1, 1900	33 33	12 "	400 00
St. Louis du Mile End	"	Post office	M. A. Campeau	Mar. 6, 1846	"	May 28, 1905	16 66	12 "	200 00
Trois Rivières	"	Custom house	Ph. Gravelle	June 3, 1828	"	Feb. 1, 1891	25 00	12 "	300 00
"	"	Post office	A. Gauthier	Feb. 4, 1850	"	" 1, 1898	33 33	12 "	400 00
Valleyfield	"	Public building	J. B. Laniel	Oct. 20, 1862	"	" 2, 1905	33 33	12 "	400 00
Victoriaville	"	"	G. Beaudet	Feb. 26, 1862	"	Mar. 3, 1904	6 25	12 "	75 00
Amherstburg	Ont.	Post office	Mrs. R. Elliott	Feb. 20, 1862	"	June 6, 1905	33 33	12 "	400 00
Almonte	"	"	Wm. Moulton	Mar. 23, 1839	"	Jan. 29, 1891	33 33	12 "	400 00
Arnprior	"	Public building	R. B. McCrerary	Jan. 11, 1862	"	Mar. 15, 1899	33 33	12 "	400 00
Brockville	"	Post office	H. Purvis	Sept. 12, 1826	"	Dec. 15, 1900	33 33	12 "	400 00
Brantford	"	"	John Squire	April 24, 1842	"	Oct. 27, 1880	50 00	12 "	600 00
Barrie	"	"	E. Sivigny	Mar. 19, 1847	"	May 1, 1903	41 66	12 "	500 00

Belleville	"	"	S. Haight	Aug.	26, 1857	"	Jan.	24, 1901	50 00	12	"	"	600	00
Berlin	"	"	J. Clemens	June,	21, 1840	"	May	15, 1900	33 33	12	"	"	400	00
Brampton	"	"	James McBride	Oct.	5, 1840	"	Jan.	29, 1901	33 33	12	"	"	400	00
Carleton Place	"	"	Jas. E. Halfpenny	April	17, 1858	"	May	13, 1892	25 00	12	"	"	300	00
Chatham	"	"	W. W. Mitchell	May	25, 1848	"	&c	Jan.	7, 1885	41 66	12	"	"	500	00
Cornwall	"	"	R. Conroy	Nov.	6, 1848	"		April	1, 1897	33 33	12	"	"	400	00
Cayuga	"	"	G. A. Gibson	May	29, 1861	"		Sept.	3, 1891	4 16	12	"	"	50	00
Clinton	"	"	J. Scott	Jan.	21, 1856	"		Feb.	9, 1904	4 16	12	"	"	50	00
Cobourg	"	"	John Boyd	Dec.	9, 1836	"		Aug.	1, 1901	33 33	12	"	"	400	00
Deseronto	"	Public building	M. Hart	Jan.	18, 1862	"		July	1, 1903	33 33	12	"	"	400	00
Dundas	"	"	Wm. Graham	Dec.	5, 1853	"		"	1, 1898	4 16	12	"	"	50	00
Fort William	"	"	D. J. McCallum	April	5, 1834	Caretaker		Sept.	21, 1904	33 33	12	"	"	400	00
Galt	Ont.	"	T. Barrett	June	17, 1861	Caretaker		Aug.	1, 1902	33 33	12	"	"	400	00
Guelph	"	"	R. McLeod	July	30, 1865	"		May	25, 1901	33 33	12	"	"	400	00
Goderich	"	" &c	G. Bissett	April	14, 1851	"		Sept.	1, 1897	33 33	12	"	"	400	00
Hamilton	"	Dominion building	Alfred Bernard	Dec.	27, 1847	"		Dec.	10, 1894	50 00	12	"	"	600	00
"	"	"	J. Wigglesworth	Aug.	7, 1863	Fireman		Oct.	1, 1896	50 00	8	"	"	400	00
"	"	"	Thomas Nicholson	Dec.	17, 1857	Engineer		Mar.	2, 1887	50 00	12	"	"	600	00
"	"	Inland revenue building	C. Blackman	May	23, 1850	Caretaker		Jan.	9, 1905	12 00	12	"	"	144	00
Ingersoll	"	Public building	John McDonald	June	30, 1841	"		Nov.	20, 1900	33 33	12	"	"	400	00
Kingston	"	R. Military College	T. Harrison	Aug.	21, 1875	Fireman		May	1, 1902	45 71	7	"	"	320	00
"	"	Armoury	F. Forsythe	Nov.	15, 1866	Engineer		Feb.	11, 1904	50 00	12	"	"	600	00
"	"	R. Military College	Wm. F. Hazlett	May	27, 1874	"		Nov.	20, 1900	75 00	12	"	"	900	00
"	"	"	J. Quigley	Oct.	30, 1857	Fireman		June	1, 1903	55 00	12	"	"	660	00
"	"	"	M. Redmond	"	2, 1867	"		Jan.	29, 1902	45 00	12	"	"	540	00
"	"	"	L. Cochrane	Mar.	1, 1879	Electrician		July	29, 1902	55 00	12	"	"	660	00
"	"	Post office	Jas. Kehoe	June	21, 1873	Caretaker		May	15, 1905	33 33	12	"	"	400	00
London	"	Custom house	M. Mulkern	Sept.	4, 1837	Engineman		Sept.	18, 1888	50 00	12	"	"	600	00
"	"	"	Wm. Greer	Oct.	12, 1839	Caretaker		Mar.	16, 1884	33 33	12	"	"	400	00
"	"	Post office	John Price	"	6, 1836	Engineer		Jan.	14, 1884	50 00	12	"	"	600	00
"	"	Drill hall	A. Maclean	Nov.	21, 1851	"		Dec.	1, 1904	60 00	12	"	"	720	00
Lindsay	"	Post office and C.-house	Wm. Galbraith	Jan.	8, 1844	Caretaker		Nov.	17, 1893	33 33	12	"	"	400	00
Napanee	"	" "	Mrs. C. E. Webster	July	12, 1846	"		Oct.	4, 1901	33 33	12	"	"	400	00
Niagara Falls	"	"	Wm. J. Sheppard	Jan.	4, 1854	"		Jan.	15, 1897	33 33	12	"	"	400	00
Orangeville	"	"	D. McPherson	April	30, 1851	"		July	15, 1900	33 33	12	"	"	400	00
Orillia	"	"	John Frawley	Mar.	14, 1844	"		Nov.	1, 1898	25 00	12	"	"	300	00
Paris	"	Public building	Sam Lee	———	, 1842	"		July	7, 1902	33 33	12	"	"	400	00
Peterborough	"	Post office	John Irwin	May	17, 1842	"		Sept.	8, 1887	25 00	12	"	"	300	00
"	"	Custom house	Wm. Taylor	Nov.	25, 1839	"		Jan.	26, 1899	25 00	12	"	"	300	00
Petrolea	"	Post office	James Shaw	June	11, 1842	"		Sept.	12, 1904	33 00	12	"	"	400	00
Picton	"	Public building	D. Welbanks	Feb.	8, 1850	"		April	11, 1902	33 33	12	"	"	400	00
Port Arthur	"	"	John Whitehead	April	15, 1839	"		Sept.	11, 1893	25 00	12	"	"	300	00
Port Colborne	"	Post Office	Wm. Armstrong	Sept.	9, 1846	"		June	11, 1888	20 00	12	"	"	240	00
Port Hope	"	"	Jos. Curlis		, 1884	"		May	1, 1905	33 33	12	"	"	400	00
Pembroke	"	Public building	Samuel Hamilton	June	4, 1834	"		Oct.	29, 1890	33 33	12	"	"	400	00
Prescott	"	Post office	R. Birks	April	6, 1822	"		May	1, 1899	33 33	12	"	"	400	00
Rat Portage	"	Public building	Mrs. J. Link	May	10, 1850	"		Dec.	7, 1901	33 33	12	"	"	400	00
Sarnia	"	"	J. H. Dyble	Aug.	25, 1860	"		Nov.	7, 1903	33 33	12	"	"	400	00
Smith's Falls	"	"	P. W. Lewis	"	19, 1863	"		Jan.	8, 1896	33 33	12	"	"	400	00
Stratford	"	Post office, &c	J. P. Murray	July	29, 1855	Engineer		"	26, 1900	50 00	12	"	"	600	00

STATEMENT showing the Names, &c., of the Engineers, Enginemen, Firemen, Caretakers, Hoist Attendants and Watchmen employed at the Dominion Public Buildings, &c. *Concluded.*

Place.	Building.	Name.	Date of Birth.	Position.	Date of Appointment.	Monthly Salary.	Time employed each year.	Yearly Salary.
						$ cts.		$ cts
St. Catharines	Post Office, &c.	A. Clark	Sept. 14, 1850	Caretaker.	Dec. 12, 1904	33 33	12 months	400 00
St. Thomas	"	G. Luton	May 25, 1857	"	April 14, 1903	33 33	12 "	400 00
Strathroy	Public building	Wm. J. Johnston	" 12, 1840	"	Oct. 25, 1890	33 33	12 "	400 00
Toronto	Dominion buildings	H. E. Hamilton	April 14, 1838	Forem., engineer	April 10, 1902	100 00	12 "	1,200 00
"	Inland revenue building	C. H. Baillie	Sept. 22, 1852	Fireman	Jan. 13, 1891	55 00	12 "	660 00
"	Custom house	Fred. Faragher	Oct. 16, 1865	"	Nov. 1, 1889	55 00	12 "	660 00
"	"	Ed. Switzer	" 10, 1856	Hoist attendant.	Aug. 18, 1901	55 00	12 "	660 00
"	Examining warehouse	James Cosgrove	Feb. 10, 1844	Engineer	Dec. 28, 1874	70 00	12 "	840 00
"	"	Ed. Appleton	Sept. 26, 1864	Fireman	Sept. 23, 1886	60 00	12 "	720 00
"	"	Alexander Dey	" 27, 1863	Hoist attendant.	Dec. 1, 1887	50 00	12 "	600 00
"	"	Wm. Chenery	Dec. 19, 1851	"	" 1, 1887	50 00	12 "	600 00
"	"	F. Simpson	Jan. 8, 1859	"	Sept. 1, 1903	50 00	12 "	600 00
"	"	Thos. Jones	Nov. 10, 1853	Watchman	April 4, 1902	50 00	12 "	600 00
"	Union station	J. Gormally	Nov. 26, 1872	Hoist attendant.	Oct. 17, 1901	50 00	12 "	600 00
"	"	G. H. Armstrong	Feb. 27, 1858	Elevatorman	April 11, 1904	50 00	12 "	600 00
"	P. O. Station	James Rae	" 17, 1864	Caretaker.	Jan. 12, 1904	55 00	12 "	660 00
"	Post office	J. Somers	April 8, 1835	Engineer	Oct. 9, 1897	50 00	8 "	400 00
"	"	George Latray	May 20, 1858	Fireman	Nov. 1, 1896	55 00	8 "	440 00
"	"	W. J. Graham	Mar. 16, 1840	"	Oct. 1, 1896	55 00	8 "	440 00
"	"	J. C. Davidson	May 21, 1876	Elevatorman	April 11, 1903	45 00	12 "	540 00
"	Junction	J. Devins	July 18, 1847	Caretaker	Feb 3, 1905	33 33	12 "	400 00
"	Drill hall	Richard Eyre	Oct. 11, 1849	Fireman	Mar. 25, 1895	50 00	12 "	600 00
"	"	D. Glionna	Aug. 8, 1867	"	Oct. 1, 1898	50 00	12 "	600 00
Trenton	Public building	David Allan	May 13, 1844	Caretaker.	Aug. 31, 1889	33 33	12 "	400 00
Walkerton	Public building	Mrs. T. Gibson		"	May 12, 1905	33 33	12 "	400 00
Windsor	Post office	I. Belleperche	Oct. 26, 1848	Engineman	Dec. 24, 1897	50 00	8 "	400 00
"	"	W. Curtis	Mar. 6, 1844	Caretaker.	Nov. 9, 1880	53 33	12 "	400 00
"	Drill hall	W. Wheeler	Sept. 26, 1874	Engineer.	Jan. 9, 1905	50 00	8 "	400 00
Woodstock	Public Building	Robert Kerr	June 6, 1864	"	Dec. 11, 1901	33 33	12 "	400 00
Brandon Man.	"	T. Giles	Mar. 30, 1843	"	Aug. 1, 1897	50 00	12 "	600 00
Portage la Prairie	"	J. S. Telfer	July 25, 1840	"	July 1, 1904	45 00	12 "	540 00
Winnipeg	Post office	Jos. Hay	May 4, 1853	Engineman	" 20, 1905	75 00	12 "	900 00
"	"	John Mikulezky	" 6, 1879	Fireman	Nov. 13, 1900	55 00	12 "	660 00
"	"	Joseph Coutu	" 10, 1843	Hoist attendant.	Mar. 16, 1887	55 00	12 "	660 00
"	"	A. Boiteau	Sept. 23, 1860	Watchman	April 4, 1905	55 00	12 "	660 00
"	"	P. Johnson	May 31, 1881	Caretaker.	Oct. 19, 1904	45 00	8 "	360 00

"	"	Custom-house	G. K. Williams	April	15, 1862	Fireman	Apl.	4, 1905	50 00	12	"	600 00
Calgary	N.W.T.	Public building	E. N. Brown	Mar.	8, 1845	Caretaker	Jan.	24, 1891	45 00	12	"	540 00
"	"	Court-house	J. McCaffray	Feb.	2, 1871	"	July	28, 1904	45 00	12	"	540 00
Carnduff	"	"	Alex. Deans	Sept.	19, 1858	"	Oct.	1, 1903	41 66	12	"	500 00
Edmonton	"	Land and registry office	R. Wylie	July	7, 1859	"	June	21, 1894	41 66	12	"	500 00
"	"	Court-house	L. Brunelle	Mar.	12, 1852	"	April	7, 1903	45 00	12	"	540 00
Lethbridge	"	Court-house & C. house	Mrs. E. Hodder	Aug.	4, 1854	"	Mar.	1, 1901	45 00	12	"	540 00
Moosomin	"	"	J. C. Jopp	Jan.	6, 1848	"	April	29, 1897	50 00	12	"	600 00
Moose-jaw	"	"	R. Smale	July	21, 1865	"	Nov.	21, 1898	33 33	12	"	400 00
Macleod	"	"	John Ryan	June	24, 1827	"	"	1, 1893	55 00	12	"	660 00
Medicine Hat	"	"	J. H. G. Bray	Jan.	24, 1841	"	June	7, 1900	45 00	12	"	540 00
Prince Albert	"	Land and registry office	Mrs. G. Cassie	———	1834	"	Jan.	1, 1904	33 33	12	"	400 00
Regina	"	Court-house & C.-house	P. McAra	Mar.	21, 1840	"	Aug.	1 1889	50 00	12	"	600 00
"	"	" &c	Jas. McLachlan	Dec.	9, 1840	Fireman	Oct.	3, 1898	50 00	8	"	400 00
"	"	Land office	W. J. Gore	July	22, 1863	Caretaker	May	6, 1901	50 00	12	"	600 00
Wolseley	"	Court-house	W. Hare	Dec.	2, 1857	"	Mar.	1, 1901	45 00	12	"	540 00
Yorkton	"	"	Geo. Betts	May	3, 1845	"	Feb.	6, 1903	41 66	12	"	500 00
Atlin	B.C.	Public building	J. A. Fraser	Jan.	1, 1851	"	June	26, 1901	12 50	12	"	150 00
Kamloops	"	Post office	W. Saul	Dec.	15, 1837	"	April	1, 1902	50 00	12	"	600 00
Nanaimo	"	Public building	J. Thompson	Sept.	2, 1836	"	May	1, 1897	50 00	12	"	600 00
Nelson	"	"	B. B. Smith	"	12, 1845	"	Mar.	7, 1903	50 00	12	"	600 00
New Westminster	"	Post office	G. D. McMurphy	Dec.	21, 1870	"	Jan.	18, 1901	50 00	12	"	600 00
Rossland	"	Public building	D. Mackenzie	Oct.	14, 1848	"	April	1, 1903	50 00	12	"	600 00
Vancouver	"	"	A. Chisholm	April	18, 1851	"	Oct.	1, 1903	50 00	12	"	600 00
"	"	"	P. Powers	Mar.	21, 1836	Watchman	Feb.	10, 1901	50 00	12	"	600 00
"	"	"	C. F. Bosomworth	Oct.	1, 1848	Asst. caretaker	July	7, 1904	50 00	12	"	600 00
Victoria	"	New Dominion building	Wm. McKay	Dec.	31, 1857	Caretaker	Feb.	4, 1898	50 00	12	"	600 00
"	"	Dominion building	A. Johnson	May	12, 1858	Asst. caretaker	April	1, 1899	60 00	12	"	720 00
"	"	"	R. C. Bradley	Aug.	13, 1843	Fireman	Oct.	1, 1903	45 00	8	"	360 00
"	"	"	J. McMillan	July	8, 1876	Elevatorman	Nov.	27, 1898	60 00	12	"	720 00
"	"	"	Jas. Parfitt	Feb.	10, 1867	"	June	1, 1905	60 00	12	"	720 00
"	"	Old Custom-house	Geo. Lyoll	"	12, 1843	Caretaker	May	8, 1900	50 00	12	"	600 00
Dawson	Y.T.	Post office	J. W. Wilson	Aug.	18, 1873	"	Jan.	1, 1902	160 00	12	"	1,920 00
"	"	"	J. K. Johnston	April	17, 1883	Nightman	Oct.	17, 1904	160 00	12	"	1,920 00
"	"	"	Mrs. J. Conklin	Jan.	20, 1847	Charwoman	June	1, 1902	150 00	12	"	1,800 00
"	"	Administration building	J. H. Mulligan	Sept.	9, 1865	Caretaker	Dec.	1, 1901	160 00	12	"	1,920 00
"	"	" "	E. D. Macfarlane	June	22, 1889	" grounds	May	1, 1905	160 00	12	"	1,920 00
"	"	" "	J. Boutin	Oct.	13, 1876	Nightman	Dec.	1, 1901	160 00	12	"	1,920 00
"	"	" "	Mrs. A. Misner	Sept.	6, 1860	Charwoman	"	1, 1901	150 00	12	"	1,800 00
"	"	" "	Mrs. E. Heacock	July	1, 1865	"	Feb.	18, 1903	150 00	12	"	1,800 00
"	"	Police court	J. E. Deslauriers	Mar.	23, 1873	Caretaker	Nov.	1, 1901	160 00	12	"	1,920 00
"	"	Court-house	H. DeVilliers	May	7, 1872	"	May	21, 1902	160 00	12	"	1,920 00
White Horse	"	Public building	C. J. McLennan	Dec.	22, 1850	"	Oct.	30, 1902	125 00	12	"	1,500 00

JOS. VINCENT.

OFFICIAL CORRESPONDENCE

DEPARTMENT OF PUBLIC WORKS

FROM

JULY 1, 1867, TO JUNE 30, 1905.

OFFICIAL CORRESPONDENCE.

Letters Received and Sent from July 1, 1867, to June 30, 1905.

Year.	Received.	Sent.
1867—From July 1 to December 31	2,075	1,511
1868 " January 1 to December 31	3,498	2,317
1869 " " "	3,448	2,171
1870 " " "	4,961	3,185
1871 " " "	6,268	3,983
1872 " " "	8,333	4,428
1873 " " "	10,072	5,707
1874 " " "	9,800	5,043
1875 " " "	9,006	5,006
1876 " " "	7,971	4,773
1877 " " "	7,517	4,425
1878 " " "	6,886	4,021
1879 " " to October 6	7,186	4,547
1879 " October 7 to December 31	2,033	810
1880 " January 1 "	8,451	4,411
1881 " " "	9,599	5,529
1882 " " "	10,505	5,699
1883 " " "	11,633	6,227
1884 " " "	13,114	6,903
1885 " " "	8,977	5,321
1886 " " "	9,644	5,352
1887 " " to June 30	4,866	2,735
1887 " July 1 " 1888	10,493	6,343
1888 " " " 1889	10,522	7,042
1889 " " " 1890	10,098	7,448
1890 " " " 1891	10,576	7,286
1891 " " " 1892	11,637	6,700
1892 " " " 1893	11,720	6,220
1893 " " " 1894	9,517	6,028
1894 " " " 1895	10,190	5,148
1895 " " " 1896	10,223	5,573
1896 " " " 1897	10,404	5,033
1897 " " " 1898	9,640	5,250
1898 " " " 1899	9,639	4,784
1899 " " " 1900	12,139	5,938
1900 " " " 1901	13,179	6,255
1901 " " " 1902	15,880	5,067
1902 " " " 1903	13,140	6,373
1903 " " " 1904	11,300	5,878
1904 " " " 1905	11,940	6,461

LETTERS Sent from Chief Engineer's Office, from January, 1880, to June 30, 1905.

Year.	—	No.
1880	From January 10 to June 30.	418
1880	" July 1 "	1,795
1881	" " "	2,352
1882	" " "	2,651
1883	" " "	3,611
1884	" " "	3,119
1885	" " "	2,867
1886	" " "	3,281
1887	" " "	3,552
1888	" " "	4,229
1889	" " "	3,374
1890	" " "	3,948
1891	" " "	4,009
1892	" " "	4,232
1893	" " "	3,966
1894	" " "	4,603
1895	" " "	4,239
1896	" " "	4,994
1897	" " "	4,696
1898	" " "	5,277
1899	" " "	7,366
1900	" " "	4,341
1901	" " "	6,759
1902	" " "	4,327
1903	" " "	5,295
1904	" " "	5,496

NOTE.—The letters, including returns, received in the Chief Engineer's Office may be estimated at the rate of two received to one sent.

LETTERS Received and Sent, Chief Architect's Office, from January 1, 1880, to June 30, 1905.

—	Received.	Sent.
1880—From January 1 to June 30		1,273
1880 " July 1 " 1881		2,943
1881 " " " 1882		2,859
1882 " " " 1883	3,538	4,600
1883 " " " 1884	3,860	6,004
1884 " " " 1885	4,500	6,718
1885 " " " 1886	6,075	6,450
1886 " " " 1887	6,816	6,380
1887 " " " 1888	6,947	6,870
1888 " " " 1889	6,484	7,667
1889 " " " 1890	7,448	6,578
1890 " " " 1891		7,751
1891 " " " 1892	6,113	4,260
1892 " " " 1893	7,428	6,453
1893 " " " 1894	6,900	4,517
1894 " " " 1895	7,538	5,327
1895 " " " 1896	7,843	5,783
1896 " " " 1897	10,700	8,200
1897 " " " 1898	10,867	8,547
1898 " " " 1899	10,913	8,762
1899 " " " 1900	12,386	9,878
1900 " " " 1901	12,287	9,860
1901 " " " 1902	12,560	10,330
1902 " " " 1903	13,430	11,106
1903 " " " 1904	14,710	15,590

SUPPLEMENT

TO THE

REPORT OF THE MINISTER OF PUBLIC WORKS, 1905

REPORT

OF THE

ROYAL COMMISSION ON TRANSPORTATION

APPOINTED MAY 19, 1903

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

No. 19*a*—1906].

WINNIPEG, December 11, 1905.

SIR,—Your Commission has the honour to submit herewith report of the Royal Commission on Transportation in compliance with memorandum placed before the Committee of the Honourable the Privy Council, approved by the Governor General, on May 19, 1903.

Yours truly,

ROBERT REFORD, Chairman.
JAMES H. ASHDOWN, Commissioner.

COPY OF COMMISSION.

CANADA

MINTO.

[SEAL.] E. NEWCOMBE, Deputy of the Minister of Justice.

EDWARD VII., by the Grace of God, of the United Kingdom of Great Britain and Ireland, and of the British Dominions Beyond the Seas, King, Defender of the Faith, Emperor of India,—

To all to whom these presents shall come, or whom the same may in anywise concern,

GREETING :

WHEREAS, in and by a certain report of the Committee of our Privy Council for Canada, approved by our Governor General on the Nineteenth day of May, in the year of our Lord one thousand nine hundred and three, a copy of which is hereto annexed, provision was made as therein set forth for an investigation of questions affecting the transportation of Canadian products to the markets of the world, through and by Canadian ports with the view of ascertaining as far as possible the best means of placing such products in a position to compete successfully through all-Canadian channels with the products and exports of other countries :

AND WHEREAS, it was provided by the said approved report that a commission should be appointed consisting of Sir William Van Horne, John Bertram, Esquire, and Harold Kennedy, Esquire, of whom Sir William Van Horne should be Chairman and Convener, for the purpose of making such inquiry, obtaining such evidence and information, and making such reports and recommendations as in their opinion (and subject to any further instructions which might be given by our Governor General in Council), the exigencies of the reference might require, and that the Commissioners should be given the compulsory powers with regard to witnesses and evidence provided for by chapter 114 of the Revised Statutes of Canada ;

AND WHEREAS, it having been ascertained that Sir William Van Horne and Harold Kennedy are unable to act upon the said Commission, it has been provided in and by a certain other report of the said committee, approved of by our said Governor General on the twenty-sixth day of August, in the year of our Lord one thousand nine hundred and three, that the personnel of the said Commission shall consist of the said John Bertram, Esquire, and Robert Reford, and Edward C. Fry, Esquires, of whom the said John Bertram shall be Chairman and Convener.

NOW KNOW YE THAT WE, by and with the advice of our Privy Council for Canada, do by these presents nominate, constitute and appoint the said John Bertram, of the city of Toronto, in the province of Ontario, Esquire; Robert Reford, of the city of Montreal, in the province of Quebec, Esquire, and Edward C. Fry, of the city of Quebec, in the province of Quebec, Esquire, to be our Commissioners to hold and conduct such inquiry ;

AND WE do hereby, under the authority of the Revised Statutes of Canada, chapter 114, intituled, '*An Act respecting inquiries concerning public matters,*' confer upon you, our said Commissioners, the power of summoning before you any witnesses and of requiring them to give evidence on oath, orally, or in writing, or on solemn affirmation, if they are persons entitled to affirm in civil matters, and to produce such documents and things as you, our Commissioners, shall deem requisite to the full investigation of the matters into which you are hereby appointed to examine, inquire into and investigate ;

TO HAVE, hold, exercise and enjoy the said office, place and trust into you, the said John Bertram, Robert Reford, and Edward C. Fry, together with the rights, powers, privileges and emoluments unto the said office, place and trust, of right and by law appertaining during pleasure ;

AND WE do hereby require and direct you to report to our Governor General in Council, the result of your investigation, together with the evidence taken before you, and any opinion you may see fit to express thereon.

IN TESTIMONY WHEREOF We have caused these, Our letters to be made Patent, and the Great Seal of Canada to be thereunto affixed.

WITNESS Our Right trusty and Right Well-Beloved Cousin and Councillor, The Right Honourable Sir Gilbert John Elliott, Earl of Minto, and Viscount Melgund, of Melgund, County of Forfar, in the Peerage of the United Kingdom, Baron Minto of Minto, County of Roxbrough, in the Peerage of Great Britain, Baronet of Nova Scotia, Knight of Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

At Our Government House in the city of Ottawa, this Twenty-sixth day of August, in the year of our Lord One thousand nine hundred and three, and in the Third year of Our Reign.

By command,

JOSEPH POPE, Under-Secretary of State.

EXTRACT *from a Report of a Committee of the Honourable the Privy Council, approved by the Governor General on May 19, 1903.*

On a report, dated April 6, 1903, from the Minister of Public Works stating that he has had under consideration questions affecting the transportation of Canadian products to the markets of the world through and by Canadian Ports with the view of placing the Canadian producer in a position to compete, and compete successfully, through all-Canadian channels with the producers and exporters of other countries.

The minister submits that it may be assumed that grain and other products will naturally seek their markets by the cheapest routes, and therefore, the method of attaining the object desired should be to make the Canadian routes cheaper and more convenient than competing routes.

That the development of north-western Canada has manifested the inability of existing Canadian transportation agencies to take care of Canadian products.

That our agricultural exports can only command the prices over seas, to which their natural excellence entitles them, when they cease to be confounded and confused with the inferior and often adulterated articles produced elsewhere, and to preserve their separate identity they must go through Canadian channels.

The minister further states that the questions to be considered are complicated and involved, including among the objects to be sought, the transportation of western products from place of production to the markets of the world.

This involves the consideration of their transportation :

From place of production to Canadian seaports.

From place of production to western ports of Lake Superior.

From the western ports of Lake Superior to Canadian seaports.

From Canadian seaports to Europe.

From place to production through Canadian ports on the Pacific.

As it affects the products of the eastern provinces of Canada it involves their movement :

To the seaports.

From the seaports to Europe.

It is obvious, that, before any satisfactory conclusion can be reached upon these questions, a thorough and comprehensive inquiry should be made regarding :

The conditions of original shipment and the possibilities of improvement in the conditions surrounding such shipments.

The storage requirements of lake, river and ocean ports.

The harbour facilities of the inland lakes, rivers and Atlantic and Pacific ports.

The conditions with regard to the navigation of the St. Lawrence route, and generally any improvement, enlargements or other matters affecting the more economical and satisfactory uses of any Canadian channel of transportation by land or water.

The minister further states that in making such investigation, attention should not be confined to routes and facilities which are at present utilized, but if necessary new surveys should be made to determine whether any more economical and satisfactory channels of transportation by land or water can be opened up.

The forces operating against the attainment of all-Canadian transports, namely :

Competition by United States railways.

Competition by United States vessels from Lake Superior ports.

Diversion of Canadian products through eastern outlets to Boston, Portland and other United States ports, should be investigated and the best and most economical methods used by our competitors should be carefully studied and reported upon.

The minister apprehends that in these circumstances it devolves upon the Dominion government to consider and adopt the best possible means of promoting such measures as may enable Canada to control the transportation of its own products, and it is thought that the most efficient method of conducting such inquiry and obtaining the required information is by means of a commission of competent and experienced experts who may be appointed and authorized under the provisions of chapter 114 of the Revised Statutes of Canada.

The minister recommends therefore, that a commission be appointed consisting of Sir William Van Horne, John Bertram, and Harold Kennedy, of whom Sir William Van Horne shall be chairman and convener, for the purpose of making such inquiry, obtaining such evidence and information and making such reports and recommendations as in their opinion (and subject to any further instructions which may be given by the Governor General in Council), the exigencies of the reference may require.

The minister further recommends that such commission be authorized to employ such scientific and professional assistance as its members may decide.

That the duration of the commission shall be during pleasure.

The minister also recommends that an appropriation be made, out of which the Minister of Public Works shall be authorized to pay expenses of all kinds incurred by the commission (including such remuneration to the commissioners as the Governor General in Council may decide), without reference to the provisions of the Civil Service Act, or any Act regulating payment of officers or employees of the government.

The Committee of the Privy Council submit the above recommendation for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

REPORT TO HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL.

May it please Your Excellency—

The Royal Commission on Transportation appointed by Commission dated the 26th day of August, A.D. 1903, begs to present its report as follows:—

The Commission as originally constituted consisted of John Bertram, of the city of Toronto; Robert Reford, of the city of Montreal, and Edward C. Fry, of the city of Quebec; of whom Mr. Bertram was appointed chairman. Messrs. C. N. Bell, of Winnipeg, and J. X. Perrault, of Montreal, were appointed associate secretaries.

The Commission regret the death of Mr. Bertram, which occurred on the 28th day of November, A.D. 1904, after a long and painful illness, and also the death of Mr. Perrault on the 7th of April, A.D. 1905.

On January 17, A.D. 1905, by Order in Council, J. H. Ashdown, of Winnipeg, was appointed a Commissioner in place of Mr. Bertram, and Mr. Reford was appointed chairman.

Mr. Fry presented his resignation as a member of the Commission early in the year 1905.

The Commission with a view of making a thorough and comprehensive inquiry into the matters referred to it, and of obtaining as full information as possible, visited a large number of places throughout the Dominion, and inspected their transportation facilities and requirements ; sittings of the Commission being held at the following points :

Nova Scotia—Halifax, Glace Bay, Louisbourg, Pictou, Sydney, North Sydney and New Glasgow.

Pince Edward Island—Charlottetown.

New Brunswick—St. John, St. Andrews, St. Stephen and Moncton.

Quebec—Montreal, Sorel, Three Rivers and Quebec.

Ontario—Toronto, Ottawa, Kingston, Peterborough, Port Colborne, Depot Harbour, Midland, Victoria Harbour, Meaford, Collingwood, Owen Sound, Hamilton, Fort William and Port Arthur.

Manitoba.—Winnipeg.

Saskatchewan—Regina.

Alberta.—Edmonton and Calgary.

British Columbia.—Vancouver, New Westminster and Victoria.

A great many of the most important harbours of the Dominion were also inspected, as also the canal systems of the great lakes and of the St. Lawrence river, and the St. Lawrence itself was traversed from Kingston to below Quebec.

At the various sittings of the Commission reports were presented and considered from a great many of the boards of trade of the Dominion, and evidence was taken and statements received from a large number of persons intimately acquainted with the transportation needs of the country. A copy of the evidence taken and of the reports, statements and exhibits put in, is submitted herewith as a part of the report.

Your Commission has deemed it advisable prior to making this report to make six interim reports on matters which appeared to the Commission at the time to call for immediate attention, and a copy of each of the interim reports so made is also hereto attached.

In compiling a report on Canada's transportation systems and recommending as to how same can, in the opinion of this Commission, be best improved in efficiency and capacity to meet the greatly increasing trade of the country, your Commission think it well to begin by acknowledging the great courtesy and kindness which they have everywhere received, and they have pleasure in saying that at every point where sessions were held a great desire was shown by men of every calling to do all in their power to forward the objects of the Commission and aid them in their work.

Considering that the rapid development of late years in both Manitoba and the whole west, and the large increase in both population and products, will undoubtedly continue in the future, your Commission feel that the work recommended by them should be based on broad lines, lines that will advance the interest and development of the Dominion as a whole, without, at the same time, losing sight of the local requirements when such could be embodied in the recommendations without loss to the national scheme.

ORIGINAL SHIPMENT AND THE POSSIBILITIES OF IMPROVEMENTS IN CONDITIONS SURROUNDING SUCH SHIPMENTS.

In dealing with this phase of the question your Commission has considered more directly the question of the shipment of the grain of Manitoba, Saskatchewan and Alberta. As this is by far the most important question that can arise in connection with the transportation problem, and if sufficient transportation facilities are provided for that portion of western Canada, which seeks eastern ports, the same facilities will in all probability meet every transportation requirement for the handling of products both east and west bound.

The whole of the grain of western Canada which is shipped eastward is, at the present time, tributary to the lines of the Canadian Pacific Railway Company, or to the Canadian Northern Railway Company, and is carried by their cars from the point of original shipment to Port Arthur or Fort William for lake transport; in ordinary seasons practically no grain intended for export being carried all rail from these ports to the seaboard, excepting what little is required, in winter season, to complete the loading by the Canadian Pacific Railway Company of their boats at St. John.

The following table shows the number of shipping stations, also the number of elevators and warehouses, with the total storage capacity ,west of Lake Superior, but including Fort William and Port Arthur, for the years 1900 to 1904-5 :

Year.	Number of elevators and warehouses.	Capacity.
1900	533	18,879,353
1901	653	29,000,000
1902	832	30,356,400
1903	982	41,000,186
1904-5	1,026	46,918,030

Of the above-mentioned storage capacity for 1904-5, 28,456,030 was at interior points, and 18,462,000 at Fort William and Port Arthur. (Vol. 4, p. 38-30.)

The elevators and warehouses in the interior cover nearly four hundred shipping points, and are practically all owned by private persons or corporations. Some of the elevators are known as farmers' elevators, being owned and operated by an association of farmers who became incorporated for that purpose, but the elevators, by whomsoever owned, are, by the provisions of the Grain Act, public elevators, and must take grain for storage from any person who offers it, provided there is sufficient room for such grain in the elevator.

In 1901 the number of farmers' elevators was twenty-nine, with a capacity of 870,000 bushels. On January 1, 1905, the number was twenty-four, with a total capacity of 1,320,000 bushels.

Instead of selling his grain at point of shipment, or putting it through an elevator for his own account, the farmer may, if he see fit, apply to the railway agent for a car or cars, and on being allotted such, load direct from his wagon into a car and send it forward for sale on track at Fort William or Port Arthur, or for storage at either of the latter points on his own account, subject to his own order at any time thereafter.

The law requiring the railway companies to furnish cars for private shipments, so that grain can be so loaded directly on the cars, has been of great benefit to individual shippers.

Your commission is pleased to note that an officer has recently been appointed by your government to look after the interests of farmers who ship grain directly by loading cars or through an elevator.

Your commission would suggest, as an improvement in the conditions surrounding original shipments, that provision be made whereby the Warehouse Commissioner be empowered, in his discretion, to compel the railway companies to provide agents during the grain season at such shipping points, where ordinarily there is no agent, as he may deem advisable. The following is a copy of the evidence of Mr. Castle, Warehouse Commissioner, on this point :

'At stations that ship a large quantity of grain, great hardship is in some cases experienced by the trade and by farmers in consequence of their being no railway agent at them. . . . Probably 15 per cent of the points have got no agents. Points where there is no agent are generally known as flag stations. These are points usually five and six miles distant from regular stations, and as a rule have no agents permanently appointed because the railway companies say the inward and outward freight and passenger traffic receipts do not justify the cost of an agent's maintenance, but from many of such points a large amount of grain is shipped during the fall of the year, and in consequence of there being no agent, a great deal of hardship and loss is entailed upon the farmers and others who desire to ship their produce at these points.

'Mr. Ashdown—How long would they reasonably require a man ?

'Mr. Castle—Probably four months would see the bulk of wheat shipped out. Last year, when Medora had an agent, there was 450,000 bushels delivered at that station; the previous year, when it was without an agent, about 270,000 was delivered ; at our station we ship only 30,000 or 40,000 bushels. We have an agent there, but we ship a large amount of cordwood and other things besides grain. At stations at which there are no agents, conductors take the orders for cars, or cars are ordered at the next station east or west. At these places there is no one representing the railway company, nor is there any station-house or buildings; it is simply a siding. At some of these points there is an elevator, and the elevator owner will have his representatives there. The railroads do not own the country elevators; they are owned by private individuals. Where there is no agent, the loading and shipping have to be done by private parties.'

From Winnipeg to the commencement of the water transportation system at Port Arthur and Fort William, the distance is 427 miles. The present existing railways (the Canadian Pacific Railway and the Canadian Northern Railway) will shortly be reinforced by the Grand Trunk Pacific Railway and the transportation facilities further improved by the double-tracking of that portion of the Canadian Pacific Railway lying between Winnipeg and Fort William (which is now under contract). When the Grand Trunk Pacific Railway is built and the improvements on the Canadian Pacific Railway are completed, there will be for the present, sufficient means for transportation of the products of the west seeking eastern ports, provided the railway companies supply sufficient equipment in the way of engines and cars and extend their branch lines within the grain districts to meet the requirements of producers in such districts.

The total number of acres in grain in the west and the yield thereof for the years 1900 and 1904, was as follows :—

1900.	Acres under Cultivation.	Yield. Bushels.
North-west Territories	605,347	8,606,602
Manitoba	2,062,052	24,943,356
	2,667,399	33,549,958
1904.		
North-west Territories	1,591,600	35,587,769
Manitoba	3,754,241	37,098,513
	5,345,841	122,686,282

The recorded immigration arriving in Manitoba and the North-west Territories for the year ending June, 1904, was.	99,757
To this add 20 per cent to cover those crossing by road and other means, not through Immigration Department's hands	19,951
Total	119,708
The recorded immigration arriving in Manitoba and the North-west Territories for the year ending June, 1905, was.	100,673
To this add 20 per cent to cover those crossing by road and other means, not through Immigration Department's hands	20,135
Total	120,808

The railway mileage of existing roads from what may at present be considered the beginning of the wheat lands, 40 miles east of the Red river to the base of the Rocky mountains, may be stated, at the end of the respective years, as follows :—

	Miles.
1901	3,369
1905	5,620

Or an increase within the five years of 66⅔ per cent.

The commission are of opinion that in order to reasonably meet public requirements, and serve the country to the best advantage, the proportion of the exportable surplus of the crop which is moved east of the great lakes, before the close of navigation, should be increased from the average of the past five years (about 46 per cent) to not less than 65 per cent, and in order to enable that result to be obtained the double-tracking of that portion of the Canadian Pacific Railway, before mentioned, will require to be completed; in view of the growth of westbound traffic, the shed accommodation at Fort William should be materially increased, so as to prevent the necessity of using cars for storage purposes at that point, and all roads operating in the west will require to have on hand a very ample supply of both cars and locomotive power and to keep the same actively moving, especially during the early months of the grain season.

Considering the very large immigration that is now coming into Western Canada, it seems reasonably certain that the next few years will show an immense increase in the grain crop of the west. The following figures were prepared by Dr. Saunders, Director of Dominion Experimental Farms, and are referred to in the evidence given before the Commission by Mr. John Love, president of the Winnipeg Grain Exchange. Dr. Saunders gives the total acreage of the different provinces as follows:—

'Manitoba	41,000,000
'Saskatchewan	70,000,000
'Assiniboia	57,000,000
'Alberta	64,000,000

'He estimates that, of these different provinces, there are in Manitoba 27,000,000 acres suitable for cultivation; in Assiniboia, 50,000,000; in Saskatchewan, 52,000,000; in Alberta, 42,000,000—a total in Manitoba and the three Territories of 171,000,000 acres. So that in 1902 we had less than 3 per cent of the land suitable for cultivation under crop. And yet we produced, out of that, 124,000,000 bushels of gain. Dr. Saunders points out that if one-quarter of the land suitable for cultivation be put under crop, at the average yield of the past three years, that is 19 bushels to the acre, we should produce 800,000,000 bushels.'—(See pages 32 and 33 of vol. III. of the Evidence.)

In view of the immense areas of wheat land in the west and of the large and ever-increasing volume of grain for which transportation facilities have to be provided, the bulk of which grain must be poured by way of the railways through the elevators at Fort William and Port Arthur, it is of paramount importance that the ports of Fort William and Port Arthur, thence the whole route eastward through the great lakes, to ports convenient for both export trade and the trade of eastern Canada, should be enlarged and improved in every possible way.

THUNDER BAY PORTS.

In dealing with the question of Lake Superior ports, your Commission would first call attention to the fact that the government of the United States has found the route through the great lakes of such vital importance to the northwestern portion of that country that it has, between the years 1867 and 1904, and largely during the last ten years, expended on improvements to Lake Superior harbours the sum of $8,132,822.98, and of this sum $4,590,905.16, or over one-half, has been expended on improvements to the Duluth-Superior harbours.

In consequence of the great and rapid development of the trade of Lake Superior, the value of craft passing through the Sault Ste. Marie canals has risen in 1904 to $69,166,400 as compared with $2,089,400 in 1887; the tonnage of said craft in the year 1904 being 31,546,106 tons. The tonnage from the ports of Duluth and Superior has more than trebled during the past ten years, and present appearances all point to continued rapid increase in both the value and tonnage of craft using such harbours.

The reduction that has been made in freight rates from Duluth to Buffalo may be seen by the following tables, which show the average rates on the commodities mentioned hereunder, in the years 1887 and 1904 respectively:

	1887.	1904.
Wheat	$0.05 to $0.08 per bush	$0.01⅛ to $0.02¾ per bush.
Flour	0.29 per bbl.	0.13 per bbl.
Manufactured iron	2.35 per ton.	2.00 per ton.
Pig iron	2.35 per ton.	1.50 per ton.
Iron ore	1.75 per ton.	0.63 per ton.
Lumber	4.00 per thousand ft.	2.55 per thousand ft.
Coal	0.90 per ton.	0.40 per ton.

The ports on Thunder bay, and known as Fort William and Port Arthur, occupy the only ground on the west coast of Lake Superior suitable as an outlet for the products of the provinces of the west, and are of similar relative position and value to the Canadian north-west as the ports of Duluth and Superior are to the United States northwest.

The harbours of Thunder bay are, from their very position, of national importance, and as such they should be dealt with; and in order to properly provide for the future of the ports of Fort William and Port Arthur, they should be considered and treated as one harbour, and should be laid out on a broad, comprehensive plan, taking in all

the water front from Bare Point, north of Port Arthur, to the mouth of the Kaministiquia, up that river to lot 10, concession 1 and including the Mission river to deep water in the bay.

A bulkhead line along the shore of that portion of the harbour fronting on the lake, and a pierhead line outside of which no obstruction of any kind be allowed, should at once be laid out; this is of great importance to prevent encroachment and for the future well-being of the harbour.

Your commission further consider that now, before the shores of the rivers at Fort William have been occupied in such a way as to render it extremely difficult or excessively costly to obtain, their width should be increased so as to make them reasonably suitable for all time, and we direct attention to the fact that the United States government has appropriated the sum of $5,000,000 for the widening of the Chicago river, while if such widening had been done at an early stage in the history of navigation on such river, the expense would have been comparatively slight, and trade in the meantime have been materially benefited.

Your commission, accordingly, recommend that a bulkhead or shore line be established on each side of the Kaministiquia river from the mouth thereof up to lot 10, concession 1, and on each side of the Mission river, and that both rivers be widened so that such bulkhead or shore lines should be 400 feet apart, and in establishing such bulkhead or shore lines special care should be taken to make the channels as straight as possible.

The McKellar and Mission turning basins should be made 1,000 feet wide and another turning basin be put in above the Canadian Northern coal docks.

In view of the urgent necessity for further breakwater protection at Port Arthur, your commission would suggest that without waiting for the maturing of any further plans, a competent engineer (or board of engineers under one head) be appointed to lay out the harbours of Port Arthur and Fort William, in accordance with the suggestions contained in this report, and with special reference to the location and commencement of that portion of breakwater protection now required, as also the commencement of the opening out and dredging of the mouth of the Mission river, and the widening and deepening of both the Mission and Kaministiquia rivers; and the commission would call attention to the report and plans prepared by Mr. E. B. Temple, resident engineer at Port Arthur, which have been filed with the Department of Public Works, and copies of which plans were filed with this commission.

It is of the greatest importance that the season of navigation be extended to the latest day possible, in the fall, in order to allow of as large a percentage as possible of the grain crop being carried east of the great lakes, and within reach of ocean navigation; and your commission have already, by interim report, recommended that the government provide an ice-breaker to keep open the waters of Port Arthur and Fort William as far as possible, and that arrangements be made with the United States government to allow of the maintaining of the light on Passage Island until the last vessel has passed down.

Considerable complaint has been made to your commission of the difficulty, in the past, of getting marine insurance late in the season, and the period of navigation has sometimes been shortened by the refusal of the insurance companies to extend the season of insurance. The present season is from April 1 to December 12, and as the English Lloyds has lately come into the field in competition with the American companies, your commission are of the opinion that if the ice-breakers and lighthouse service herein recommended be provided, the companies will themselves make arrangements to extend the insurance season accordingly.

Your commission affirm the principle that the Dominion of Canada, as it has the care of inter-provincial trade and commerce, and in accord with that duty is continually expending large sums of money in maintaining, bettering and protecting our harbours and waterways, should, in the public interest, own and control the land under and also that adjoining the waters of the same and reasonably usable in connection

therewith; and in developing the ports of Thunder bay through which, in the future, must flow so large a portion of the commerce of the great west, it is of great importance that this principle be acted on, and your commission would call attention to their interim report, dated August 18, 1905, and would strongly urge :

1st. That all lands held by the province of Ontario or the towns of Port Arthur or Fort William on the harbour's front of Port Arthur, as also the Kaministiquia, Mission and McKellar rivers, including water lots, road reserves, &c., be obtained by the Dominion government from the said province and towns, and that the government take steps, by way of purchase, expropriation or otherwise, to obtain such other lands as may be reasonably necessary.

2nd. That islands numbers one and two on the south side of the Kaministiquia, other than those portions owned by the above named bodies, be expropriated by the Dominion government.

3rd. That no greater portion of the south bank of the Kaministiquia river, or of the east bank of the Mission river, be granted to the Grand Trunk Pacific Railway than is reasonably necessary, and the balance thereof, and all other water lots and water front now in the possession of, or owned by the Dominion government, or that may be acquired by it, as before mentioned or otherwise, be owned, held, administered and controlled by the government of Canada for the public benefit, and with a view to the accommodation of all interests which now or hereafter may desire to centre at or use the said ports.

SAULT STE. MARIE.

While the locks at Sault Ste. Marie are, at the present time, capable of providing for all vessels at that point, still the requirements of the future may demand an additional canal, and the commission recommend that the government obtain at an early date all such land as may be reasonably required, in case the construction of such additional canal be at any time decided upon.

While the United States government has made considerable improvements in the channel below Sault Ste. Marie, still Mud lake, at the foot of St. Mary's river, remains, in the late fall and early spring, the weakest link in the chain of communication between the head of Lake Superior and the foot of Lake Erie.

Your commissioners would also recommend that the entrance to the channel of the Canadian end at Sault Ste. Marie be widened to 500 feet on the straight part and 800 feet on the bend.

Your commission would accordingly suggest that the resident government engineer at Sault Ste. Marie be instructed to report on the most feasible plan of improving the current in Mud lake, with a view to carrying off and preventing the accumulation of ice at the season of year mentioned, also to report as to any lights between Whitefish Point and Mud lake or otherwise which should reasonably be a matter of international arrangements.

They would further recommend that, if possible, arrangements also be entered into with the government of the United States for the providing of an ice-breaker, to be used in keeping open the waters of Mud lake to the latest date in the fall, and in opening the same at the earliest date in the spring.

The commission believe, from the evidence adduced, that by providing the two ice-breakers mentioned and making proper arrangements for maintaining suitable lights and signals, the season could be extended in the fall, in normal years, to about the 20th of December (or say two weeks later than at present), and would open about ten days or two weeks earlier in the spring.

SAULT STE. MARIE EASTWARD.

From Sault Ste. Marie the problem presents itself of providing the cheapest, quickest and best route or routes from the elevated great lakes system to ocean navigation.

The elevation or depression (as the case may be) to be overcome is approximately 572 feet at Port Colborne or Buffalo, or 581 feet between the Georgian bay ports and the ocean, and 602 feet between Lake Superior and the ocean, the difference between Lake Superior and Georgian bay being overcome by the Sault Ste. Marie Canal, and the difference between Lake Huron and Lake Erie by the gradual fall of the St. Clair river.

GEORGIAN BAY PORTS.

The principal ports on Georgian bay for export trade are Depot Harbour and Midland. These ports were established by the railroad companies, with the view of affording the most convenient and shortest rail routes by which to reach Montreal; the Canada Atlantic Railway running from Depot Harbour, and the Grand Trunk Railway from Midland. The distance from Depot Harbour to Montreal via the Canada Atlantic Railway is 339 miles, while the distance from Midland, over the Grand Trunk Railway to Montreal, is somewhat greater.

The movement of grain during the past few years and especially the present season, has shown the great importance of the route by way of Georgian bay, and the necessity of the railroad companies, operating from Midland and Depot Harbour, thoroughly equipping their roads, reducing their grades to not exceeding four-tenths per cent, and generally improving their road-bed and facilities to the standard of the New York Central railroad, Buffalo to New York, thereby enabling the moving of not less than forty thousand bushels of wheat in a train load. In this connection and in connection with the probability of the Canadian Pacific Railway establishing a new rail route from Midland to Montreal, your commission would call attention to the evidence of Sir Thomas Shaughnessy (Vol. 3, p. 138):

'An alternative (to the French river route) and one that we feel much inclined to act upon, is the establishment of a new route from Midland or some point in that vicinity to Montreal. We think we can get a line there with :04 grades not exceeding, 355 miles in length. With a line like that we could handle traffic as cheaply as they handle it through canals. If we were going into Midland with such gradients as that, I should say we would be able to handle 40,000 bushels of wheat in a train. When you get into 60-car trains, the wear and tear is considerable; 40,000 to 50,000 bushels I consider quite practicable. The New York Central do handle 60 and 70 car trains.'

See also as to Midland the following evidence of C. M. Hays (vol. 3, p. 165):

'The grain comes directly down by our Midland Railway and comes into the Grand Trunk at Belleville, thence to Montreal. Our plans are for the reduction of our grades from Midland to what is our present standard ·04 per cent (at present 1 per cent is the maximum) and to double track the line to our main line at Port Hope.'

Again, as to grades from Depot Harbour:

They are not as favourable as by our main line. We run up there to 65 and 70 feet to the mile but on the Midland and Canada Atlantic we are reducing the grades. Depot Harbour is, to my mind, the only port which compares with Midland, and its advantages of deep water and accessibility, and it has 60 miles shorter water carriage than Midland.'

Again from the evidence of Sir Thomas Shaughnessy (vol. 3, p. 140) :

'The Ontario millers take a considerable amount every year that would have to come down to Owen Sound, to Goderich and to other ports on Lake Huron. . . . . Our grade from Owen Sound is an impossibility for heavy traffic. I think 17 to 18 carloads of grain would be our greatest load over it. . . . . I think the harbour facilities at Owen Sound are sufficient for the present business at the port, and if a route of less resistance be established between Georgian bay ports and the seaboard, the tendency at Owen Sound would be a decreased traffic instead of an increase.'

The port of Midland should also serve as the port for the Trent Valley waterway, on which the government of Canada has already expended between five and six million dollars, thus having made its construction a settled policy, and your commission would recommend that this waterway be pressed to an early completion and that it be by way of the Severn at the Georgian bay end, and the Trent on the bay of Quinte, so that its terminals will be in protected waters whereby greater safety will be given to the somewhat smaller boats and barges which will have to be used on this route.

Your commission recommend that the Intercolonial Railway be extended to Depot Harbour on Georgian bay, either by way of running rights over the Canada Atlantic Railway or otherwise, thereby giving that road very greatly increased traffic, and also making it of material assistance to the transportation trade in the summer and fall seasons, in the carrying of grain to Montreal, and in the winter in carrying to and aiding in the building up of the trade of the ports of St. John and Halifax.

Your commission further recommends that a competent board of engineers be appointed to lay out the harbours of both Depot Harbour and Midland on a broad, comprehensive plan, such as may reasonably be expected to be sufficient for the wants of the trade of the future, ample accommodation being provided for the present trade in such a manner that it can be readily added to as necessity arises and along the lines of and in accord with such plans.

One of the great weaknesses of this route in the past has been its want of sufficient elevator accommodation; it being borne in mind that besides the amount of such accommodation which would ordinarily be required at a transfer point, at the time of year when the Manitoba and North-west crop is being moved to the seaboard, the railroads operating from the Georgian bay ports are also moving large quantities of general merchandise, as well as United States grain, and (partially on this account) have not, in the past, moved forward the crop as rapidly as was necessary to prevent congestion. While every possible effort should be made to cause these railroads to provide all necessary equipment, so as to facilitate the rapid movement of the grain to the seaboard, and while other means, such as the bringing in of the Intercolonial and the opening of the Trent waterway, should be adopted for the Georgian bay route; still it is essential that a large amount of storage accommodation should be available. Your commission, therefore, would strongly recommend that the government undertake the construction of a system of elevators at each of the ports of Midland and Depot Harbour, so as to provide proper storage capacity at each point for at least 10,000,000 bushels, and that such construction be commenced at the earliest possible moment, and pushed forward in such a manner as to enable the completion of say one-half of the same in time for aiding in the handling of the crop of 1906, and the balance in time for aiding in the transporting of the crop of 1907.

In connection with the question of elevators, your commission, while not seeing their way clear to any recommendation on the point, would call attention to the following from the evidence of Mr. Hays (vol. 3, p. 166):

'We are very much interested in a national scheme for provisional storage, and it seems to me if the government proposes to do anything in that direction there is no way they can make an investment that would pay better than to provide for the issue of what you might call, an elevator bond for these different ports and require the rail-

ways to do something to pay the interest so as to guarantee that the elevators would be full of business.'

Mr. Ashdown (vol. 3, p. 167):

'Do I understand you, the policy of the Grand Trunk would be to join in a system of elevator bonds and to guarantee the government the cost of the elevator?'

Mr. Hays :—

'That would be our inclination upon some fair, equitable plan. We, of course, would want to have some voice in the control of the expenditure, and we would want a say as to the size and location and a voice in the cost of the plans.

Your commission, while not seeing their way clear to any specific recommendations regarding the ports of Meaford and Collingwood, would call attention to the evidence given at these points (vol. 2, p. 274-307) and would recommend that the government give a favourable consideration to such improvements (including any required deepening of the harbours) as may be reasonably necessary for the present and future trade at these ports.

(2) WELLAND CANAL ROUTE.

The all-water route, via the Welland and St. Lawrence canal system, leaves Lake Erie at Port Colborne, the Welland canal running 27 miles to Port Dalhousie, on Lake Ontario, the route running thence through Lake Ontario to Kingston, at the north-east extremity of said lake, about 165 miles, or to Prescott, a few miles farther east on the St. Lawrence river, and by the St. Lawrence canal system to Montreal. The distance between Kingston and Montreal is about 180 miles, and between Port Colborne and Montreal about 377 miles, the entire distance between Fort William and Montreal, via the Welland and St. Lawrence canal systems, being 1,220 miles. On the Welland Canal the locks are 270 feet in length, 43 feet in width, and with 14 feet depth of water on the sills. Vessels can pass carrying up to about 70,000 bushels of wheat. Larger vessels drawing more water have to discharge, at Port Colborne, the surplus of their cargoes above that figure, either into lighters or into cars of the Grand Trunk Railway Company for transportation by rail. The lighters pass through the canal and their cargo is reloaded into vessels at Port Dalhousie on Lake Ontario, going thence to Kingston or Prescott, where the surplus is again discharged into lighters, and the remainder carried through to Montreal on original vessels, stored or discharged into other craft at Kingston or Prescott.

Your commission recommended that a south-eastern breakwater, as recommended by Mr. Coste, be built as an additional protection at Port Colborne (if not already in course of construction), and that the other improvements in progress at that point (including the 2,000,000 bushel elevator), be pushed to an early completion, with the view of having the elevator ready for use for the grain season of 1906 and the whole work completed without regard to whether the Welland Canal be enlarged or otherwise, so as to be available while the Ottawa River Canal is under construction, should the government decide in favour of that work, or while the Welland Canal is being enlarged, if such is to be done. In either case, the elevator would still be of value both as an aid to transportation and for transfer and storage purposes.

(3) BUFFALO ROUTE.

In competition with the Canadian routes above described, there is one main United States route, namely, via Buffalo, by either the Erie canal, or by rail, to the seaboard.

The Erie canal is 7 feet deep on the sills and affords accommodation for barges carrying about 8,000 bushels only, thus making it necessary that the cargoes of large

lake crafts should be entirely discharged at Buffalo. To offset the deficiencies of the Erie canal and retain the western transportation trade, the United States railways running from Buffalo to New York and other Atlantic ports have made great improvements to their lines, by shortening the same, reducing grades and curves, and by using more powerful locomotives ; and by the use of larger vessels on the lakes than those of the Canadian marine, this route has been able to retain a large amount of the traffic, and the rates have been reduced to a point with which the Canadian roads find it difficult, at times, to compete. In addition to being aided by its superior railroad facilities for moving the grain forward from Buffalo to the seaboard, the United States route is also favoured by the working of our coasting trade laws, which compel the United States boats taking on a cargo at a Canadian port to discharge the same at a United States port; and while the Canadian tonnage is fairly equal to the ordinary work of an ordinary shipping season, towards the end of the season, when it is most important that as much grain as possible should be taken out by the lakes before the close of navigation, the United States boats will probably be largely employed.

The route via Buffalo has in the past been of special use in aiding the moving of the crop when the facilities of our own ports or our own lake tonnage were not sufficient, especially towards the end of the season, also in aiding in the regulation of rates. In the interest of the producer and the trade generally, no obstacle of any kind should be placed in the way of traffic seeking this route, which has proved in the past and will continue to prove in the future, so valuable, and at times absolutely necessary, but every effort should be made to render the Canadian routes as cheap, if not cheaper, and with at least equal, if not superior, facilities to anything offered by the United States routes.

MAIN CANADIAN LAKE ROUTES.

Your commission are of the opinion that the Canadian routes herebefore mentioned, viz.:

(1.) Via Midland, including the Grand Trunk Railway (double-tracked as Mr. Hayes proposes), the Trent Valley waterway, and in all probobility the Canadian Pacific Railway;

(2.) Via Depot Harbour, including the Canada Atlantic and Intercolonial railways ;

(3.) The all-water route, via either the proposed French and Ottawa rivers canal system, or the enlarged Welland canal ;

Should be taken and considered as the main Canadian routes by which the products of the west will reach ocean navigation.

UNIFORM SIGNALS.

In view of the fact that it is highly desirable that all vessels plying on the great lakes should use the same fog, passing, light, and other signals, your commission would suggest that the government unite with the United States government in the adoption of a uniform system of signals, and that on such uniformity being established, legislation be passed making the use of such signals compulsory.

UNIFORM STANDARD OF DEPTH OF WATER.

Your commission further recommend that the standard depth of water in all harbours and waterways in connection with the great lakes down as far as the foot of Lake

Erie should be twenty-three feet zero, and that work be immediately undertaken to deepen to that standard such portions of the harbours of Port Arthur, Fort William, Depot Harbour, Midland and Port Colborne as are required for present use, and that the work be continued thereafter so that at all times there shall be ample harbour capacity of that depth for the requirements of the trade.

AIDS TO NAVIGATION.

In the course of the investigations of your commission, the aids to navigation on the great lakes set forth in the following list have at various times and places been asked for, mainly by those thoroughly in touch with the necessities of the navigation in question. The most of these aids are undoubtedly required, and your commission would recommend that a competent officer be forthwith appointed by the Department of Marine and Fisheries, to report on same, and that, as far as reasonable, the requests be complied with and work done or improvements made as far as practicable before the close of the season of 1906.

LIST.

A light on Sister islands entering Depot harbour, as a guide at night from Carbon rock light to Depot harbour.

A ten-inch steam whistle for Cove island. It is claimed by mariners that the present horn is of no use.

A steam whistle on Flower Pot island.

A steam whistle on Red rock.

The light at Red rock to be placed on Seguin bank, and a new light at either Kill Bear point or Cousin island and the light fixed so that it will shine all around the horizon.

A strip of the woods to be cut in the rear of Snug harbour ranges.

A nun buoy painted black, at the axis of the Jones island and Snug harbour, which could be picked up on a compass course from red gas buoy and Hooper island in thick weather.

A gas buoy on Jennie Graham shoal at Jack island.

A black stake off the north-east end of Middle Duck, to mark the shoal.

A gas buoy at each of the following places:—Duck island, Bear Rump island, at turn of Snug harbour, at Jones islands ranges on Three Star shoal.

Range lights at Midland harbour require improvement.

Fog signals at the following places:—Hope island, and one of the Christian islands.

Gas buoys on Sawlog point and on the middle ground in Midland bay.

Gas buoy on Bad Neighbour Rock, opposite Cove island.

Gas buoy on Duck island shoal, where there is a lighthouse and a fog signal, but with nothing to mark the end of the long shoal.

Light on Parisian island, in White Fish bay, fifty-five miles above Sault Ste. Marie.

A lighthouse and fog signal on the north end of Michipicoten island.

The south light in Midland harbour to be raised higher.

It is claimed that the channel into the port of Collingwood is not properly lighted.

A gas buoy required at Spruce shoal, on Georgian bay, five miles north-west of Cape Croker.

A gas buoy at Lockerby Rock.

A fog whistle required in Collingwood harbour.

A red and black buoy at the mouth of the dredged channel at Owen Sound.

A gas buoy at Spry's shoal outside of Cape Cove.

Gas buoy on Surprise shoal (Spry's), Georgian bay.

Gas buoy at the end of the dredge cut at Port Arthur, similar to the gas buoy at the end of the cut at Fort William.

Stakes in Thunder bay, off the lighthouse and Hare island.

A horn at the lighthouse at Port Arthur to assist incoming boats in the fog.

A red light required at entrance to Port Arthur harbour.

Lighthouse and fog siren required on the most northerly end of the Welcome islands.

At Fort William the channel should be better staked for getting in and out in thick weather, and the range lights altered, as at present they are unsatisfactory and dangerous.

DESIRABILITY OF THROUGH WATERWAY.

Your commission unhesitatingly affirm their belief in the desirability of a through waterway from the head of Lake Superior to ocean navigation, to aid in the carriage of the grain and the regulation of rates of a standard not less than that above set forth, so that the largest vessels navigating the great lakes can continue their voyage to ocean navigation or as near thereto as possible. But in view of the fact that the government has undertaken the survey of a proposed route by way of the French river to Lake Nipissing and thence by way of the Ottawa river to Montreal, and as the feasibility of this route from a commercial as well as an engineering point of view, and if feasible its cost, has not yet been ascertained, and further in view of the fact that the government has also undertaken the survey of the Welland canal and its vicinity, looking to its possible enlargement and diversion, your commission do not see their way clear to any recommendation as to route, but would recommend that, in case the Ottawa river scheme because of want of feasibility from a commercial or engineering point of view, or on account of its cost or for other reason be not adopted, then the Welland canal be enlarged and deepened to the standard of the Sault Ste. Marie canal, with a view of enabling vessels of the largest size to continue their voyage to Kingston or Prescott, thus bringing their cargo to within, say 180 miles or less of Montreal before discharging same.

INTERCOLONIAL RAILWAY.

The idea in the minds of your commission in recommending that the Intercolonial Railway be extended to the Georgian Bay, was that the road should be provided with ample rolling stock, and become of material use in the movement of grain, and become a thoroughly efficient competitive road; and in order to the carrying out of this idea, and with the view of the road being run as a business enterprise only, they would recommend that legislation be had, providing for the appointment of a commission, with full powers to manage, control and operate the road, and that the commission be appointed immediately after such legislation is obtained.

Your commission are not aware of what arrangements were made with the Grand Trunk Railway for running rights by the Intercolonial over the Canada Atlantic, at the time legislation was passed permitting that road to be taken over by the Grand Trunk, but if nothing definite was arrived at, your commission would suggest that some equitable arrangement be come to, whereby the Intercolonial acquire running rights over the Grand Trunk system to Depot Harbour and Midland, and the Grand Trunk or Grand Trunk Pacific have running rights over the Intercolonial from Moncton to St. John and Halifax, the commission feeling that such an arrangement would serve the public interests, while accommodating the railroads concerned.

TORONTO.

Your commission recommend that the under-mentioned improvements be made in Toronto harbour, conditional upon the city of Toronto handing over to the government of Canada, all such lands on the water front of the harbour (including water-lots), and lands reasonably required in connection therewith (together with piers, docks and approaches), as are now owned or controlled by the city, and conditional upon its making proper provision so that the basins between the piers will be kept free from city sewerage.

IMPROVEMENTS RECOMMENDED.

That the entrances to the harbour both east and west be dredged to a depth of 16 feet zero.

That a channel 300 feet wide be dredged to a similar depth through the harbour, from the eastern to the western entrance.

That the piers at the eastern entrance to the lake be extended out to 18 feet of water.

That the shoal at the eastern entrance be removed.

That groynes be built on the west side of the island.

That the city piers be extended and the water at the piers be dredged to a depth of 16 feet.

Considerable evidence was given before the commission as to the desirability of turning eastward and straightening the Don river, so that it will empty into Ashbridge's bay, instead of into Toronto harbour, and your commission would recommend that this matter be favourably considered by the government, but that, before any action is taken, full consideration be given to all questions that may be connected therewith, including the cost of the land required, and the ownership of land reclaimed or made by reason of such diversion. On this point the commission would call attention to the evidence of Kivas Tully, C.E. (Vol. 2, p. 72-73).

KINGSTON.

Kingston occupies the important position of being at the foot of lake navigation, and a large trans-shipping business is being done there, excellent facilities for that purpose having been provided by private enterprise. At a sitting of the commission held there, it was strongly urged that the Welland canal should be deepened, so as to allow of the large craft now plying on the upper lakes proceeding direct to Kingston with cargo intact, without being obliged to discharge a portion or all of their cargo at Port Colborne.

FARRAN'S POINT.

Your commission would recommend that the pier at the lower entrance of Farran's Point should be altered, as at present it projects much farther than the superstructure, thereby causing considerable damage to a number of vessels; also that the curve at Farlinger's point be straightened and Rapide Plat canal which at present is lit with lamps and is worked by hand, be lit with electricity, and the locks worked with electric or steam power.

MONTREAL.

The city of Montreal situated as it is at the head of ocean navigation, and at the foot of western canal navigation, and being the centre towards which all Canadian transcontinental lines of railway gravitate, occupies a unique position in the transportation system of Canada. It is, and should be treated as, the chief Atlantic summer port of the Dominion, and as such the interests of the nation should always be paramount, and be the governing principle in the administration and improvement of the port. Its harbour should be controlled by the government and laid out on broad lines with a view to the transportation needs of the future of the nation as a whole, due regard being had also to local needs.

At present the harbour is managed by a harbour commission, appointed by statute 57-58 Vic., Chap. 48. This commission is composed of eleven members, six being appointed by the government, four by the commercial interests of the city, while the mayor of Montreal is ex-officio member. Its jurisdiction extends over the entire water front from about a mile above Victoria bridge to Longue point, a distance of about nine miles.

There is no private ownership whatsoever of any of the water front, but the whole is owned by and under the control of the government of Canada through the commission. The port usually opens about April 20, and closes about November 25. The wharf space in the harbour at present consists of about.

3,137 feet with under 20 feet depth of water.
18,499 feet with between 25 and 27 feet depth of water.
11,373 feet with between 27 and 30 feet depth of water.

making the present available wharf frontage 33,009 feet, or 6·251 miles, while there is at present under construction by the harbour commissioners 1,800 feet, or ·341 miles, with 30 feet depth of water. In addition to the above, the Tarte pier and shore wharf now under construction will afford 3,014 feet frontage or ·583 miles. All these wharfs are available for ocean vessels, which do not draw more than the depth of water indicated in each case.

The upper part of the harbour is protected from ice shoves, in the fall and spring, by the guard pier, which can be availed of in the future for storage and wharfage purposes.

Extensive works in the east end of the harbour are contemplated, to be constructed as necessity demands, and unlimited room for such purpose is available as far down as Longue point, a distance of between three and four miles.

Permanent steel sheds are now under construction in the centre of the harbour, by the Harbour Commissioners, on what are called 'high level piers,' i.e., piers whose surface is on a level with Common and Commissioner streets.

Railway tracks and sidings have been laid along the piers and wharfs by the Harbour Commissioners, who at present give running rights to the Grand Trunk and Canadian Pacific Railways, and similar rights are intended to be given to any other railway which may in future come into the harbour and require such facilities.

The debt of the port amounts to $8,347,000, and the present improvements now under construction will probably increase this debt to $10,222,000.

The present elevator capacity amounts to 3,000,000 bushels, and in addition thereto the Grand Trunk Railway is now building an elevator at Windmill point of a capacity of 1,000,000 bushels.

Your commission recommend:

That Montreal be made by the government a free port along the lines hereinafter set forth in this report;

That a branch of the Grand Trunk Pacific Railway be built to Montreal from the most convenient point on its main line, so as to bring Montreal into immediate connection with all territory covered by that system;

That in laying out the harbour, with a view to future requirements, attention should be had to the position of St. Helen's island and the danger that exists to a vessel when leaving the present docks, running on the rocks at that point, as shown by the accident to the steamer *Victorian* this past summer; your commission feel that such an accident is to be deplored more from a national standpoint than from any effect it may have on local interests, and they would recommend that in order to avoid the recurrence of such an accident, any extension of the dock system should be towards the east end where the river is wider;

That in view of the fact that necessary lifting apparatus is badly needed for the handling of heavy packages, a pair of shear legs be erected at the end of one of the present centre piers, and another pair of shear legs in the east end, each capable of lifting weights of 75 tons, with the necessary electrical power and tackle for transferring cargoes from craft to railway cars;

That an Admiralty Court be established at Montreal, to be operated, if possible, in connection with the Admiralty Court at Quebec, and under the same judge.

Additional gain elevator capacity is needed in order to make Montreal such an important grain depot as its geographical position warrants, and one that will attract ocean tonnage, especially of the character known as 'tramp tonnage,' which at present, to a large extent, avoids the port on account of the uncertainty of procuring grain cargoes. Your commission, therefore, recommend that additional elevators be provided by the government so as to bring the present capacity of the port up to 5,000,000 bushels, and that such capacity be increased from time to time as the requirements of the trade demand, up to 10,000,000 bushels.

Your commission understands that the government has already under consideration for some time the question of providing a dry dock for Montreal, which, it is urged, should be at least 1,000 feet long, and capable of accommodating a vessel of the largest size, or two or more smaller ones, together with the question of providing new entrances to the Lachine canal, high level basins, &c., according to the plan known as the 'Gallery' scheme, and accordingly your commission do not deem it necessary to make any report on the matter.

In regard to the question of whether the tracks for the handling of freight along the harbour front of the port of Montreal should be level or elevated, your commission find that the views expressed are varied and conflicting, and as the matter is already under the direct consideration of the Honourable the Minister of Marine and Fisheries, deem it inexpedient to make any recommendation.

ST. LAWRENCE RIVER AND GULF BELOW MONTREAL.

Your commission further make the following recommendations :

That the erection of permanent beacons on Lake St. Peter is essential, and as these beacons are understood to be now in course of erection, your commission would recommend their early completion, so that lights may be placed thereon for the opening of navigation of 1906.

That the lighting and buoying of the river for night as well as day navigation be prosecuted until the channel is made absolutely safe, both night and day.

That the St. Sulplice channel be buoyed so that it may be used by vessels of such draught as it will accommodate.

That all lighthouses and permanent beacons, on the river, be attended to by permanent attendants, so that there will be no danger of these lights or beacons being extinguished.

That new lights are required at the entrance of both Montreal and Quebec, and your commission would recommend their being placed so as to be available for the season of navigation of 1906.

That the river channel, both above and below Quebec, be swept at least twice in the season, the first sweeping to be done as soon as possible after the opening of navigation.

That the pilot station be transferred from Bic to Father Point, and a steam tender supplied.

That medical inspection should take place at Father Point, and that vessels found free from infectious diseases should not be required to call at Grosse Isle.

That Marconi wireless telegraph stations be installed at Cape Ray and Father Point in addition to other stations already being equipped.

That a re-survey of the river and gulf (if not already commenced) be undertaken at once, as the charts below the River Saguenay are old and in many cases inaccurate.

That hydrographic surveys be made.

That submerged bell signals be installed if same are found practicable and an aid to navigation.

That wherever there is a light on the coast there should be an up-to-date fog signal.

The government has already decided upon and undertaken (under the able supervision of Mr. F. W. Cowie, government engineer), certain improvements in the lower St. Lawrence, especially in making the depth of the channel 30 feet at lowest water, and of a width of not less than 500 feet, with ample additional width at the bends, and the removal of shoals at certain points on the river, and the commission do not, therefore, feel it necessary to make any recommendation as to these improvements, further than to suggest that the works already decided upon be pushed to completion at as early a date as possible.

As it is necessary for the safety and efficiency of the route that the above improvements should be made in connection with the St. Lawrence route, your commission would recommend that these improvements, if not already decided upon, should be undertaken by the government and carried to completion with the least possible delay, your commission being strongly of opinion 'that the government should not lose a minute of time, should not spare any expense whatever, in making the aids to navigation from Belle Isle and Cape Race to Montreal as thorough and as complete and as up-to-date as possible.'

SOREL.

Your commission recommend that a marine railway slip be constructed at Sorel if not already undertaken by the government.

THREE RIVERS.

Your commission recommend that the wharfs now under contract be pushed to completion at as early a date as possible.

QUEBEC.

Your commission recommend :

That Quebec be made one of the free ports along the lines and upon the conditions hereinafter set forth in this report;

That the breakwater be extended about 1,460 feet in a northerly direction, and in connection with this extension that sufficient surface be provided to permit of

the erection of suitable passenger landing sheds, freight sheds and railway facilities, as there is but one berth at the present breakwater;

That the present breakwater be widened so as to give more surface room for sheds, &c.;

Your Commission do not see their way clear to make any specific recommendation in regard to the government undertaking other wharf and harbour improvements, which it was urged were necessary, but (recognizing the importance of Quebec as a national harbour), would recommend that competent engineers be appointed by the government to look into and report on the plans submitted, with a view of having such improvements made as may appear to the government to be reasonably necessary and practicable, considering the trade of the port.

ST. JOHN.

The port of St. John is one of the Atlantic winter ports of the Dominion and has admirable natural facilities.

Your commission would recommend that it be made one of the free ports along the lines and upon the conditions hereinafter set forth in this report.

The port has upon its east side the pier of the Intercolonial Railway and a number of private municipal wharfs, while at the north is the deep water terminus of that road. On the west side is Sand Point, the terminus of the Canadian Pacific Railway, where are situated four ship berths owned or controlled by the city, and one berth (the most southerly), controlled by the railway company. For 1,600 feet south of the southerly berth, the Canadian Pacific Railway Company own the shore frontage, this having been surrendered to them by the city. This fact, coupled with the physical difficulty, on account of the elevation of the land to the west, precludes any extension by the government to the south. To the north of the city berths, on the west side of the harbour, there is a shore line ample enough to provide berths sufficient for the railway and steamship requirements of the port for many years, and your commission would, therefore, recommend that this property be at once obtained by the government, and that the government proceed with the construction thereon of a wharf 1,200 feet in length, giving accommodation to four large steamers.

Your commission also recommend that the government proceed to obtain, for the transportation needs of the future, all such other lands east of the Intercolonial Railway Company's docks as it may be considered reasonably necessary to obtain.

Your commission further recommend that the government dredge the entrance to the harbour to sufficient width and depth, to meet all requirements and install and keep up all lights, buoys and other necessary aids to navigation, so as to enable vessels to enter the harbour at all states of the tide or conditions of weather; also that the extension of the breakwater from the west side to Partridge Island be constructed so as to assist in keeping the channel clear and give further protection to the harbour.

HALIFAX.

Halifax has a magnificent harbour, opening directly from the Atlantic, unobstructed by shoals, and easy of access from the ocean at all times.

In view of its importance, and its being the present winter trans-Atlantic mail port of the Dominion, your commission recommend that care be taken by the government to put and keep the harbour and its entrances in first-class condition.

Your commission recommend that this harbour be made a free port along the lines and upon the conditions hereinafter set forth in this report, and that negotiations be entered into by the government of Canada (if not already done), with the Imperial government looking to the acquisition by the government of Canada of all land, wharfs, docks, (including dry docks), and other harbour accessories and facilities now owned by the Imperial Government.

The harbour itself is well lighted and buoyed, but the commission recommend that a first-class lightship, furnished with a powerful fog whistle be placed and maintained by the government some miles off Sambro Island for the protection of vessels now endangered when approaching the harbour in foggy weather.

Your commission further recommend that the government, in dealing with all railways desiring to have terminals at Halifax (including the Intercolonial Railway), see that such terminals are located and arranged with the view of best serving the interests of the port and the trade, (both freight and passenger), that may pass through it.

Your commission further recommend that the Intercolonial Railway between Richmond and the deep water terminus be double tracked, and that land be obtained, either by purchase or expropriation for an additional freight shed and storage house on the west side of Water street, Halifax; also that a large shed be built to be used for storage and shipment of export flour to the West Indies, Newfoundland, &c.; these improvements being necessary for the immediate wants of the port.

The commission approve the intention of the government to remove the engine house and machine shops of the Intercolonial Railway from their present position in the centre of the yard, to a more suitable site with increased space.

NEW GLASGOW AND PICTOU.

Your commission recommend that Pictou harbour be made fit and available for vessels drawing up to 30 feet of water, and that the bars be dredged to that depth.

A number of suggested improvements were brought to the attention of the commission, and the commission would recommend that the following matters be considered by the government, with a view of determining whether the same are reasonably necessary and practicable, considering the trade of these points.

(a) The deepening of the East river to New Glasgow;

(b) The shortening of the line of railway and reduction of grades between Moncton and New Glasgow, Pictou harbour, Stellarton and Westville, in regard to which various representations have been made to your government.

(c) The inspection by properly qualified government engineers of Country harbour to determine its facilities as a first-class port.

SYDNEY AND NORTH SYDNEY.

These two harbours should be considered as one port and should be so dealt with by the government. The port is eminently fitted, from April to December, as a port of call, especially for tramp tonnage, and the commission believe, that, if the bunker coal were sold at lower prices, tramp tonnage would be attracted and the value of the port in this connection would be greatly enhanced, as freighters could call there for orders and proceed thence for cargo either up the St. Lawrence or to Gulf or Atlantic ports. It is a well-known fact that owners dislike sending a vessel to a terminal point where they have the option of but one market.

Your commission would recommend that this port be made a free port on the lines and under the conditions set forth in this report.

In view of the fact that this port is the connecting link between Canada and Newfoundland, your commission would recommend that the following improvements be carried out at an early date :—

That the railway lines be extended so as to bring them onto the docks ;

That the wharfs at both Sydney and North Sydney be built of a sufficient size to give accommodation for at least one large ocean steamer, where she would always be able to lie afloat at any state of the tide, with say not less than 35 feet of water at low tide ;

That such accommodation be provided at the docks as may be reasonably required for handling passengers and cargo to and from Newfoundland.

That a gas buoy be provided one-half mile off the centre of the entrance to the harbour.

LOUISBOURG.

A request was made from the town of Louisbourg for a pilot tug boat and pilot boats, it being urged that these were necessary on account of the fact that pilots have to go out five miles to meet ships, which in heavy weather is felt to be very unsafe and unsatisfactory. Your commission, would, therefore, recommend that the government give this request its careful consideration.

PRINCE EDWARD ISLAND.

In view of the complaints received from Prince Edward Island, in regard to lack of reasonable means of inter-communication between that island and the mainland, in the winter time, your commission thought well to hold a sitting at Charlottetown, where evidence was submitted from representatives of all portions of the island. It was urged that a system of ice-breaking car ferries between Pictou and Charlottetown, and between Summerside and Pointe du Chene, should be established in connection with, and under the control of the management of the Intercolonial Railway, it being claimed that capable vessels could be constructed; and it was stated that the result of the north-east gales, together with the abnormally high tide in the straits, is that the ice is blown straight into Pictou harbour, prevented from getting away, and piled up into barriers impassable for any boat which is not provided with a forward screw, but that the very conditions which block Pictou harbour clear out Summerside harbour. (See Vol. 3, p. 256). Your commission therefore recommend that the government have inquiries made by properly qualified officials as to the merits of this proposal.

The question of the proposed tunnel between the island and the mainland was also presented, but the statements dealing with its practicability and cost were conflicting and varied. Your commission are informed that the government is now securing definite data as to the character, extent and probable cost of such an undertaking, and in view of the great importance that relief will be granted to the inhabitants of this fertile and productive island, your commission would recommend that the government give this scheme careful consideration.

SHIPPING—SICK MARINERS' FUND.

In view of the fact that there is a general objection to the tax on shipping for hospital fees, it being felt that this tax is both unnecessary and unjust, and in view further of the fact that the abolition of this tax would relieve Canadian vessels from payment at United States ports of the tonnage tax imposed thereupon all vessels of

countries which impose a similar tax on United States vessels, your commission would recommend that this tax be abolished and vessels be made responsible for their own sick.

PILOTAGE.

Your commission are pleased to know that your government has taken over the pilot system on the St. Lawrence river down as far as Quebec, and that arrangements have been made to take over that of the lower part of the river below Quebec, and would strongly recommend :

That all pilots operating on Canadian waters, or into Canadian ports, wherever situated, should be under direct government control, undergo a strict annual examination, and be subject to rules and regulations, for the infraction of which and for any improper conduct in the discharge of their duties, they should be liable to exemplary punishment, it being intolerable that a vessel, with its passengers and cargo (either or both), should be endangered or lost through the incapacity or misconduct of the pilot employed because of his supposed knowledge and ability ;

That the system whereby the earnings of the pilots below Quebec are pooled and divided equally between competent and incompetent pilots, should be abolished, and, instead, that each pilot receive his own earnings ; and further that as under such improved system the earnings of the competent pilots would be greatly increased, the rates should be reduced to the schedule prevailing between Montreal and Quebec, or to such amounts as the government may consider fair remuneration.

BUOYS.

Your commission recommended that all illuminated buoys on any of the waterways be made occulting ; those on the starboard side, occulting red ; and those on the port side occulting white or green; and also that all buoys, used for day navigation be painted red on the starboard side and black on the port side.

CANAL TOLLS AND REPAIRS.

Your commission would recommend that the policy of the government during the last few years in making the canals free of tolls, be continued in the future and made permanent, and that any repairs required be made in the winter or very early spring so as to enable the opening of all canals at as early a date as possible in the spring.

GRAND TRUNK PACIFIC.

Your commission would recommend that in the interests of the whole country, and particularly with a view to the import and export trade, the Grand Trunk Pacific Railway be constructed from Quebec to Moncton by the most direct route.

IMPROVEMENT OF INTERCOLONIAL RAILWAY.

Your commission recommend that the government consider the question of the reduction of the grades and curves on the various lines of the Intercolonial Railway running from Moncton to St. John, Halifax and Cape Breton.

SHIP BUILDING.

Evidence was given at various points regarding the ship building industry. At eastern ports a general complaint was made that there had been a reduction in the proportion of Canadian built craft as compared with craft built elsewhere, while in the west there is a great scarcity of the same, and all over the Dominion the ship building industry languishes. Complaints were made of the injustice of the present position and a request for a bounty was urged,—see the following evidence (Vol. 4, p. 425).

P. 425, Mr. Alexander :

'I think they (the government) could give a bonus for ship building in order that we might have a merchant marine owned in British Columbia. Here we have the materials for an export trade, and yet there is not a sea-going vessel owned here. We need a bonus to get people to start the ship building industry. On Puget sound they have their ship yards, and they have experienced men who will not come here to work unless they get higher wages or something to induce them to come. The result is that you could not build a vessel here at the price you could there.'

'The chairman: What bonus do you think would be required?

'Mr. Alexander: I would say $5 a ton. I may say that Australia, which is the largest customer for Pacific coast lumber, takes from sixty to eighty million feet in the year. The bulk of its building timber goes from here. It goes largely by sailing vessels. They want long timber, and China also frequently wants long timber. Here we have a sister colony and yet the principal part of its trade goes to the United States. As much lumber goes from Puget sound to Australia alone as the entire export business of British Columbia.

'Mr. Ashdown: What kind of vessel would you build here?

'Mr. Alexander: Wooden sailing vessels.

'Mr. Ashdown: For which you ask a government bonus of $5 a ton?

'Mr. Alexander: Yes. It would be an important industry in the country, and would also serve the purpose of helping the export of one of the principal articles of production in British Columbia, namely, lumber.

'The Chairman: These vessels could be used for any purpose?

'Mr. Alexander: Certainly. The American vessel as a general thing comes up here and loads lumber for Australia, and then brings coal from Austalia to the Hawaiian islands, and also to San Francisco. It also brings sugar to British Columbia.'

Page 493.—Captain John G. Cox, the representative of Lloyds at Victoria, was introduced and stated:

'The inconsistency of the position in which our ship builders are placed lies in the fact that a ship can be imported free of duty, hull, machinery and everything else, with all the labour applied on her being old country labour, while our builders have to pay a duty on most of the raw materials they use, as well as a heavy duty on the machinery which they may import, amounting to twenty-five per cent.

'Mr. Ashdown: What proportion does the machinery bear to the completed ship?'

'Captain Cox: About one-half.'

In view of the fact that your commission was appointed to deal with matters of transportation, and that these are so vitally affected by the amount of tonnage suitable for the trade, and that tonnage can nowhere be so well supplied as from our own Canadian yards, your commission feel that the question is one with which they should deal, and that reasonable assistance necessary to cause a revival of an industry of so great importance should be given, and would therefore recommend that a bounty of $5 per ton gross register, be paid by the government of Canada on all wooden vessels, sailing and steam, of 500 tons or over commenced and built in Canada after June 1, 1906, and $6 per ton gross register on all such iron or steel vessels of 500 tons or over so commenced and built after that date.

NATIONAL OR FREE PORTS.

The commission feel that it is imperative, in the public interests, that an ample supply of lake and ocean tonnage should at all times be available, for the carrying of products of Canada and the building up of its commerce; and, in view of the attractions natural to the ports of the United States, with the enormous amount of commerce for and incidental to a country of such population and resources, it is necessary that all Canadian ports intended for, and through which is to flow, the export and import trade of Canada, should not only furnish the best of accommodation, and be raised to the highest point of efficiency and safety, but should also encourage general lines of shipping, and free or tramp ships in every possible way.

With the view of furnishing to the best advantage, ports with the accommodation, efficiency and safety required, your commission would recommend that legislation be had providing for a system of national ports, and in accord with the principle of Dominion government ownership of the lands under and those adjoining and reasonably usable in connection with navigable waters, that your government forthwith proceed to obtain by gift, purchase, expropriation or otherwise, all such lands situated at the below mentioned ports, whether owned by any province, city, town or other public body, or by any other person or corporation, as the position may make it reasonably necessary to obtain, and that such lands so obtained, together with those now controlled by the government of Canada, and administered under it by a General Board of Harbour Commissioners in connection with the Department of Marine and Fisheries.

And your commission recommend that as soon as such lands mentioned in the last preceding section as may be reasonably necessary, at any of the below named ports have been obtained by, and transferred to the Dominion government, the said port shall, by proclamation of the Governor General in Council, be declared a national port, and that thereafter no port or dock (other than dry dock or elevator), charges shall be levied by the government, or allowed to be collected by any government official at such port.

The ports referred to are as follows:—

Fort William and Port Arthur.
Depot Harbour.
Midland.
Port Colborne.
Kingston.
Montreal.
Quebec.
St. John.
Halifax.
Sydney.
Vancouver.
Victoria.
The terminus on the Pacific ocean of the Grand Trunk Pacific.
The terminus on the Pacific ocean of the Canadian Northern Railway.

Your commission also feel that it would be of great advantage in the public interests, that the railway tracks which are situate on the government docks at any such port, should be under the control of the government of Canada, with a view of allowing their use by all parties requiring them instead of having them owned or controlled by any one corporation, and would, therefore, strongly recommend that, whenever necessary or desirable for improved trade facilities, such tracks be obtained or constructed (as the case may be) by the government, and a fair charge be made to the various railways making use of them.

FAST ATLANTIC SERVICE.

In view of the fact that the population and commerce of the Dominion of Canada has increased very largely of late years, and that the construction of the Grand Trunk Pacific Railway and other railroad extensions, and works under contemplation or in progress, guarantee the continued growth of population and development of the country, your commission feel that the time is near at hand when a much improved Atlantic steamship service would be justifiable in the interests of the country, especially with a view to the carrying of passengers and of fast and perishable freight, and to the carriage and delivery of mails to and from Great Britain much more quickly than at present. The people of the maritime provinces at present labour under the disadvantage that their mail matter for or from Great Britain or other European points is obliged to go *via* New York or Montreal, thus entailing material delay. And in view of the fact that such a service, if inaugurated, would also be of great importance as a link in the chain of imperial intercommunication between Great Britain and its dependencies and allies in the far east, as well as its possessions in the Pacific, your commission would recommend that negotiations be entered into with the imperial government, having in view a joint subsidy to a company for a first-class service, not less frequently than bi-weekly, between Halifax and Liverpool, the same to carry the British mails for this continent and its dependencies on the Pacific and the far east, also the Canadian mails, and to be especially adapted and intended for the carriage of dairy products, chilled meats and other perishable freight, fast freight and express goods, also sufficient to meet all the requirements of the British admiralty for the carrying of troops or other service in time of war, the said fast service to go into operation by the date of completion of the Grand Trunk Pacific Railway, or say, five years from date.

And your commission would express the opinion that such service would be of inestimable value in aiding in the development of the dairying, fruit-growing and cattle-raising industries in every province of the Dominion, and further, that the amount which will have to be paid for the carrying of Canadian mails *via* New York under the readjustment to be made in 1906, together with that now paid for the Montreal services, would form a material item towards the subsidy required.

The above-mentioned Atlantic service to be subsequently supplemented by a similar fast service on the Pacific ocean to the east, as the requirements of trade may demand.

SURVEYS.

In the report of the Committee of the Honourable the Privy Council, in accordance with which your commission was appointed, it was stated :

'In making its investigations, attention should not be confined to routes and facilities at present utilized, but, if necessary, new surveys should be made to determine whether any more economical and satisfactory channels of transportation by land or water can be opened up.'

In view of the fact that since the appointment of the commission your government has decided on and made arrangements for the construction of the Grand Trunk Pacific Railway, and is now making surveys in connection with the proposed French river and Ottawa river canal systems, and an exploration or survey in connection with the proposed enlargement or diversion of the Welland canal, your commission have not thought it necessary or advisable to direct any further surveys to be made.

WINNIPEG AND WESTWARD.

In taking up matters pertaining to the country, Winnipeg and westward, except in so far as they have been dealt with in connection with eastbound traffic, your commission have thought well, in view of the magnitude of the country and the varied interests to be considered, to submit a separate section of the report dealing exclusively with the west. And, in view of there being so much yet to be done in the opening out, developing and bettering of such a new country, your commission have felt justified in dealing with some matters not connected with systems of through transportation, or directly referred to in the minutes of council under which they were appointed, but which are of material interest to the localities affected, and through them to the Dominion at large, which is so vitally interested in the growth, prosperity and peopling of every section of what was but a short time ago so aptly and well described as 'The Great Lone Land.'

LAKE WINNIPEG AND RED RIVER.

Lake Winnipeg is of greater superficial area than Lake Erie; its resources in timber, lime, stone, gypsum and other building materials, as also fuel, the products of the fisheries (which are largely exported direct to the United States), &c., are of great importance, and their development would result in building up centres of population on its shores, as well as in the settlement and development of the neighbouring country. Freight and passenger steamers now run regularly to many parts of it. It is, therefore, extremely advisable that this lake be properly charted as an aid to navigation, to enable vessel owners to secure marine insurance, which at present cannot be obtained.

The city of Winnipeg, the Red river valley and other considerable portions of the prairie country, are strongly interested in obtaining the resources of the lake and its shores, and are, therefore, deeply interested in the improvement of the Red river, by way of dredging at its mouth, and the building of a lock and dam at St. Andrews rapids, and the government having recognized the desirability of such work by a considerable amount of dredging already done, and by the adoption of plans and the letting of a contract for such lock and dam (the work only being stopped because of the desirability of a change in the plans). Your commission would strongly urge that any changes advisable be adopted at once, a new contract let and the work pushed through to completion at the earliest practicable date; also, that the Red river between the city and the international boundary line to the south be cleared of snags and boulders, where necessary, in order to connect the navigable water in Canada with the improved river stretches in the United States.

ASSINIBOINE RIVER.

In the early years of the history of this province, the Assiniboine river was navigated by river steamers, even as far as Fort Ellice, but attempts which have of late years been, from time to time, made to navigate it, have been frustrated largely by the failure to swing the bridges spanning it.

Your government have had several reports on this river from the resident engineer, Z. Malhoit, who, in his evidence before the commission, says (p. 42) :

'The cost of rendering the river navigable for river steamboats, propellers—that is, stern-wheelers—would not be so very much. The river is navigable, as it is, with

a little improvement, by the boulders in the rapids being removed. At a comparatively small cost the river could be made navigable to the foot of the rapids near Brandon.'

The river itself and its tributaries drain a large area of very productive land, but material damage is often occasioned by the spring freshets which cause its banks to overflow.

Your commission are of the opinion that by damming the outlets of Last mountain and other lakes at its source, and so retaining their waters at flood season, and by cleaning and dredging the river by means of a snag boat, the lower stretches of the river could be made navigable during a large portion of the season, while the overflowing of its banks in the springtime would be prevented to a great extent. Your commission would recommend that the resident engineer be instructed to report on such reasonable improvements as will best accomplish these objects.

THE GREAT PLAINS OF THE WEST.

In endeavouring to deal with questions connected with the great plains of the west, that 'country of magnificent distances,' your commission thought well to hold sessions at Regina, as representing the centre; Edmonton, the north-western, and Calgary the south-western, portions of an immense tract of land, which, notwithstanding the immigration of late years, is very sparsely settled—in many localities hardly touched—but which is destined in the not distant future to become the home of millions of the human race.

REGINA.

The evidence given at this point had reference to the Hudson's Bay route (quoted elsewhere); to the possibility of the construction of the Panama canal, causing the opening of a new route for carriage of grain by way of the Pacific Ocean to the markets of Europe, and to the lingering doubt in the minds of some, as to whether wheat reaches and is sold in its ultimate market under the same grade as it is purchased at point of production. Regarding the last, namely, the grading of wheat, Mr. Bell says (Vol. 4, pp. 349 to 351) :

'The Inspection Act has now been drawn, as far as human foresight could make it, to prevent any admixture or adulteration of Manitoba grain from Fort William to its final destination. It is especially prohibited that any inspector, east of Fort William, shall re-inspect Manitoba grain, or grain grown in the North-west Territories.'

'Mr. Ashdown—When you say Manitoba grain, you mean grown anywhere in the North-west?

'Mr. Bell—Yes. It is designated in the Act as Manitoba grain.

'Under the instructions of the Department of Trade and Commerce, samples of all the grain being graded under the various standards fixed by law are sent each fall to all the principal corn exchanges of the United Kingdom of England, Ireland and Scotland, as well as to New York, to be there filed and open to the inspection of the public, so that they can at any time consult them and inspect them, and see what the character of the grain of each particular grade is for each year; because after all, "one hard" slightly varies in some of its minute characteristics while meeting the requirements of the Act from year to year. In some it may be a little brighter in colour than in others, and yet always come within the lines laid down as "one hard."'

From Mr. Bell's evidence, and from other information, your commission are of the opinion that since the amendments of the year 1900 to the Grain Inspection Act, no grain going over Canadian routes and thence by Canadian vessels to its destination has been tampered with, but, barring damage from sea weather or otherwise, has been delivered in Great Britain under the same grade and in the same condition as when certificate of grade was issued at Fort William or west of this point.

EDMONTON.

In view of the fact that Edmonton is the most northerly point of importance, and has for a considerable length of time been, and will continue to be, the distributing centre for a very large territory, especially in the Athabaska and Ptace river districts and other portions of the unorganized territory lying north and west, and in view of the expected opening out and development of the country, it is important that every reasonable consideration be given to questions brought forward by those in touch with transportation needs at that point. And your commission would call attention to the report of Edmonton Board of Trade (vol. 4, p. 356) as to Peace river :

'The great Peace river, the only means of communication with the great north land, is navigable for steamers for a distance of about 900 miles from Hudson's Hope to its mouth at Lake Athabaska, with the exception of a single obstruction known as "The Chutes" in the neighbourhood of Fort Vermilion. There is reason to believe that this could be overcome by the construction of a short lock, which could be built at a very small cost, there being a natural excavation around the short falls which obstruct navigation. This work would afford uninterrupted navigation from the head of navigation on Peace river at the Rocky mountains to the Portage at Fort Smith on the Slave river. Here navigation is obstructed by some sixteen miles of rapids, to overcome which would require a very heavy expenditure. It is suggested as an alternative, which would require a comparatively small expenditure, that an electric tramway should be constructed by the government for the purpose of carrying the traffic around the rapids. The rapids themselves would furnish the power necessary to generate the electrical energy required. From the foot of the rapids there is uninterrupted navigation down to Slave river, across Slave lake and down the Mackenzie river to the Arctic Ocean. The suggested improvements at these two points would thus afford easy and cheap transportation from the upper waters of the Peace river to the Arctic Ocean, a distance of about 2,000 miles.

Your commission would, therefore recommend that a complete survey of the Peace river be undertaken by the government, with a view of such improvement as will make that stream navigable to as great an extent as possible, provided the same is at all reasonably practicable.

Your commission would also recommend that information be obtained as to the practicability, at a reasonable cost, of improvements being made to the Athabaska and the Slave river, with a view to safe navigation on those streams.

It having been represented that if the North Saskatchewan river were improved so as to allow of safe and steady navigation during the entire season, it would be of great value to Edmonton and the entire country through which the river flows, and in view of the fact that steamers have in the past been taken from the upper Red river, through Lake Winnipeg, for service on the Saskatchewan, and did for a time operate between Edmonton and Grand Rapids, thus showing the feasibility of navigation of that river. Therefore, your commission would recommend that a survey of the Grand Rapids, and any other parts of the Saskatchewan necessary, and an examination of the whole length of the river, from Edmonton to its mouth, be made, with a view to the carrying out of such work as may be deemed advisable toward improving navigation, and also with a view of deciding as to whether work should

be undertaken in connection with the Grand Rapids for the purpose of connecting river navigation with that of Lake Winnipeg.

In view of the large increase in production in the Edmonton district, and the necessity for the shortest possible western outlet, your commission would recommend that the construction of the Grand Trunk Pacific Railway, from Edmonton to the Pacific coast, be commenced and pushed to completion within the shortest possible time.

HUDSON BAY ROUTE.

Your commission would point out that the greater part of the immigration of late years has been to that portion of the country now included in the new provinces of Saskatchewan and Alberta, and that large areas in southern Alberta, which a year or two ago were given up to cattle ranches, are rapidly being converted into wheat fields and the development of the whole western country is going forward very rapidly and will undoubtedly continue to do so ; and in consequence of the fact that the farther west the settler goes, the less profitable it is to ship his produce to markets of the world through Atlantic ports, the feeling in favour of seeking a new route to Europe, by way of Hudson's Bay, is strong, and is well expressed by W. R. Motherwell, Minister of Agriculture of the province of Saskatchewan (Vol. 4, p. 336):

'There still exists in the minds of the people of Saskatchewan and the north-west generally, a feeling that the Hudson's Bay was not placed in the interior of western Canada for no purpose. We believe that no stone should be left unturned to settle the question of the feasibility of that route. We know that the Dominion government have sent exploring parties into the Hudson's Bay in the past, and that they have now parties there gathering data on this subject. We are not in a position to give this commission technical evidence as to the practicability of that route; but the feeling I speak of exists in the minds of the people of the North-west, and it will not be appeased until every effort is made to ascertain whether there is a cheaper and shorter route to the markets of the world by way of Hudson's Bay than we have at present.'

Under these circumstances, while every means by way of observation or otherwise to ascertain its practicability should be adopted, still it is doubtful if the people of the provinces of the west will ever be satisfied as to the non-feasibility of the route, or the extent to which the bay and straits are really navigable, without deciding the matter by the actual running of steamships from Churchill, or whatever port may be selected, to the British isles.

Your commission regret that they were unable to obtain the evidence of Mr. Hugh Sutherland, executive agent of the Canadian Northern Railway Company, or of Mr. William Mackenzie, its president (which company is understood to control the charter of the Hudson's Bay Railway), and, therefore, do not feel in a position to make any report regarding that road.

The commission would, however, recommend :

That as soon as a railway is built from the wheat fields of the west to a deep water terminus on Hudson's Bay and is properly equipped for the carriage of traffic seeking the markets of Europe by way of the waters of such bay, the government appoint capable engineers to lay out a good, commodious harbour on a comprehensive plan, in accordance with which any improvements undertaken, shall be made.

That the government, in accordance with the principle previously affirmed, retain the ownership of the water front and land reasonably usable in connection with same.

That they construct such dock or docks as are reasonably necessary for the purposes of the trade.

That if, and as soon as, the commerce of this port be of such reasonable dimensions as to justify the course, the port be, by proclamation of the Governor General in Coun-

cil, declared a national port and added to the list of such already named, and that no port or dock (other than dry dock or elevator) charges be made by the government or allowed to be collected by any government official.

CALGARY.

The local market of British Columbia has, in the past, taken a large portion of the grain and general produce of Alberta, but as the opening out and settlement of the country causes the amount of produce to increase, it will be necessary to find other markets, if not routes, and as the distance from Calgary to Vancouver is but 650 miles, while that from Calgary to Fort William is 1,267 miles, or nearly twice the distance, there is an inclination to seek an outlet on the Pacific coast, and your commission would call attention to the following from the Calgary Board of Trade report (Vol. 4, p. 382):

'Taking these grades (Calgary to Vancouver) as they are to-day, given equal quantities, the grain from the Long or Swift Current can be taken to Vancouver as cheap as to Fort William, probably for considerably less. The only material adverse grades for westbound freight is for seventeen miles; the remainder of the way is as favourable for westbound freight as for eastbound freight. Further, nature, in the way of climate, has made, for the colder portions of the year, transportation to the western port far more favourable than for the eastern one, taking into consideration that during four months of the year there is an advantage of 40 per cent in respect to temperature, which causes a very marked decrease in regard to the cost of transport. Further, she has placed an inexhaustible fuel supply at different points at almost equal distances apart, viz., Medicine Hat, Canmore, Nicola lake and Vancouver island. The matter of fuel should not cost one-half of what it does in the east, and the cost of fuel represents on the entire Canadian Pacific Railway system from 4 per cent to 15 per cent of the total cost of operation.'

The statements in the report in regard to cost of carriage are corroborated by Mr. William Pearce, who says (Vol. 4, p. 395):

'Suppose the rate from Swift Current to Fort William was a dollar a ton, it would be only 60 cents a ton during the same time to Vancouver.'

In addition to the evidence of the Board of Trade as to grades, cost of carriage, &c., your commission would call attention to the evidence of Mr. B. W. Greer, General Freight Agent, Canadian Pacific Railway Company, Pacific Division (Vol. 4, p. 426-8), as follows:—

'Mr. Ashdown—Would you kindly give us the rate on grain from Swift Current to Vancouver.

'Mr. Greer—Forty-five cents.

'Mr. Ashdown—The rate from Calgary?

'Mr. Greer—Thirty-five cents.

'Mr. Ashdown—I think there has been, on occasion, a reduced figure for export purposes?

'Mr. Greer—Yes.

'Mr. Ashdown—What has that been?

'Mr. Greer—It varies. We have hauled grain from the North-west Territories as low as twenty-five cents for export.

'Mr. Ashdown—From what points?

'Mr. Greer—From various points all through Manitoba and the Northwest.

'Mr. Ashdown—Wheat?

'Mr. Greer—Principally oats. I do not think we have ever exported any wheat through Vancouver.

'Mr. Ashdown—You would probably give as low a rate for wheat as for oats?

'Mr. Greer—I think so. Grain of all kinds is always carried under the same tariff.

'Mr. Ashdown—So that in case of the wheat of Alberta looking to the west instead of the east for a market, your rate would be about the figure you mentioned?

'Mr. Greer—I think it would be about the rate we would make, because we anticipate that the soft wheat that is now being developed in Alberta—the winter wheat—will, to a certain extent, supply the Oriental market, and on that we would give a rate.

'The Chairman—Of twenty-five cents?

'Mr. Greer—I would not say twenty-five cents definitely. We would have to meet the conditions of competition on the other side.

'The Chairman—In other words, you would help the Canadian exporter to fight the man in Seattle?

'Mr. Greer—Yes. We have gone to great lengths in trying to develop that fall wheat industry. We have carried a great deal of seed wheat from Kansas, most of it free of charge, for the purpose of inducing the farmers to sow it, in order, if possible, to produce a soft wheat which would compete with the Washington wheat exclusively for the Oriental market. That is the principal object.

'Mr. Ashdown—Would you probably maintain a different rate for wheat for home consumption?

'Mr. Greer—We would certainly expect a higher rate for flour used locally.

'Mr. Ashdown—Speaking of the rate of twenty-five cents, I suppose that would cover any portion of the territories west of Swift Current?

'Mr. Greer—That would cover all the Alberta district north and south of Calgary. I do not know that we would carry at that same rate from Swift Current. In fact, so far as my knowledge goes, I do not think there is any prospect of developing any shipment of grain to the Pacific coast from east of Alberta.'

This evidence goes to show the wish of the Canadian Pacific Railway Company to develop the trade in winter wheat for the purpose of the Oriental market, and as the proposed rate of 25 cents per 100 pounds is within one cent of the rate to Fort William, and as the competition of the Puget sound points on the one hand and of the Grand Trunk Pacific Railway (when constructed) on the other, will doubtless cause a still further reduction in rates, your commission are of the opinion that a very material increase in west-bound traffic from the whole province of Alberta may be expected.

Your commission while expressing the belief that wheat and other grain will continue to be the main article of export of this western country, at the same time wish to call attention to the cattle trade, which, notwithstanding the cutting up of many of the large ranches into ordinary farmers' holdings, on account of the progress of the country, will continue to be a very large and growing trade and one that in the interests of the country is deserving of every attention. On this subject your commission would particularly call attention to the report of the Board of Trade of Calgary (Vol. 4, p. 386-391), and, in view of the present unsatisfactory condition of the trade, and in consideration of the action of New Zealand, the Australian States and Argentina in the endeavour to promote in every way their cattle trade, your commission would recommend that a special commissioner be appointed to look into and report on the whole question of that branch of the trade of the northwest, including the practicability of opening out an export trade in dressed beef, providing a proper cold storage system and arranging for the disposal of the by-products, &c.

In view of the fact that a grain inspector for the district of Calgary has been appointed under Mr. Horn, Chief Grain Inspector, for the inspection of grain both east and west bound, your commission would recommend that as soon as proper facilities for the weighing of grain at that point are provided, he be also appointed official weigh master.

VANCOUVER.

In view of the future growth of trade between the provinces of Alberta and British Columbia, the development of the latter province itself, and the geographical position of Vancouver, with its grand deep water harbour, the evidence taken at that point is of great public interest, and your commission would invite a careful reading of the whole, but would particularly call attention to the question of the ownership of the water front of Vancouver harbour. See the evidence of Mr. Bell-Irving (P. 439-40-41-42).

'You have referred to a point which many of us in Vancouver consider of very great importance, that is, the control of the water front by one corporation. I believe that question will become of increasing importance as time goes on and as Vancouver increases in population and new industries are established. At the present time the Canadian Pacific Railway have, I think, about ten times the water front required by them for their legitimate business. It might be possible to make some arrangement, whereby, without detriment to their legitimate business here, which no one wishes to injure, this valuable water front which they do not require, should again be relinquished to the Dominion, and thereby thrown open to others. At the present time many industries along the water front exist on sufferance of the Canadian Pacific Railway, which is scarcely a fair position for them to be in. It is highly detrimental to the development of this place that so much of the water front should be controlled by one corporation. I saw a statement the other day which I believe to be correct, that the Canadian Pacific owns the water front all the way from Vancouver to Port Moody. It is not clear whether any land owned by private individuals is covered by the grant to the railway. A large portion of False creek on both sides and also on English bay, is owned by the Canadian Pacific Railway, so that almost the entire water front from Port Moody down, on the portions of the shore which might be used for harbour purposes, is said to be owned by that company.'

'The Chairman—How far do their rights run into bays?

'Mr. Bell-Irving—For a considerable distance.

'The Chairman—So that if the government built cribwork and dredged the harbour, and filled in on both sides, to whom would that belong?

'Mr. Bell-Irving—That would be for lawyers to decide—how far their privileges went out.

'The Chairman—Would you suggest that the Canadian Pacific Railway be reimbursed for giving up a portion of this territory?

'Mr. Bell-Irving—No doubt the C. P. R. will require to receive further privileges from the government in the future as in the past, and I merely put it forward as a suggestion that if any arrangement of this kind could be made, it would be of great advantage to the whole Dominion. Of all things we want the open door, and we want more than one or two railroads to come in here, and we should like to see the avenues of approach, both by land and water, kept as free as possible.

'Mr. Ashdown—What portion of the water front within the limits of Vancouver is owned by the C. P. R. Company?

'Mr. Bell-Irving—About fourteen miles; there may be one or two points which are not included.

'Mr. Ashdown—So that the company has all the water front on the Vancouver side of Burrard inlet?

'Mr. Bell-Irving—Yes; and also a portion of both sides of False Creek.

'Mr. Ashdown—You mean to say then that the C. P. R. ownership extends as far as deep water goes in False Creek?

'Mr. Bell-Irving—Yes; False Creek is navigable only for small craft. It could be made navigable by dredging and blasting.

'Mr. Ashdown—What part of the harbour front is occupied by the Great Northern Railway ?

'Mr. Bell-Irving—It is in False Creek.

'Mr. Ashdown—Beyond that owned by the C. P. R.?

'Mr. Bell-Irving—Yes. It is not navigable by vessels of any consequence whatever.

'Mr. Ashdown—Then, the Great Northern does not reach navigable water ?

'Mr. Bell-Irving—No.

'Mr. Ashdown—If other roads came into Vancouver, how would they reach navigable water ?

'Mr. Bell-Irving—One feasible scheme would be to throw a bridge across the second narrows. It would be a very costly bridge to build. It would have to be either a high level bridge or a low level bridge with a large swing. That would give access to the north shore of Burrard inlet.'

Also, that portion of the board of trade memorial relating to same (pp. 520-1 and 2) :

'That, in view of the two great factors :—First, the geographical position and magnificent extent of the land-locked harbour of Vancouver, ice-free at all seasons and with capacity and anchorage to accommodate vessels of the largest tonnage afloat, undoubtedly establish it as, for all time, Canada's greatest gateway on the Pacific. . . . . The board considers that it is much to be deplored that, as will be seen by the map herewith exhibited, almost the entire water frontage on the south shore of Burrard inlet within the city limits, is either owned or practically controlled by one corporation; while, to the fullest extent, acknowledging the magnificent enterprise with which the Canadian Pacific Railway Company has contributed to the advancement of our country and province, and not forgetful that it is to being the terminus of that great highway that Vancouver owes her existence, this board cannot but be strongly convinced that the future importance of the city as a commercial entrepot; the requirements of the natural resources of this province and of the agricultural and manufacturing interests of the Dominion at large, demand that the Federal government should endeavour either by acquiring from the railway company restitution of a portion of its foreshore rights, or if that be impracticable, by some regulation of the wharfage and dockage accommodation, embodying reasonable dues, which would have the effect of affording free access on the one hand to general shipping, and on the other to such further railways as may, from time to time, be authorized by charter to run to this port.

'With the same objects in view, the board would urge upon your serious consideration that the government be advised to adopt such measures in regard to riparian rights alike on all parts of Burrard inlet beyond the city limits and within the First Narrows, and on the shores of (*a*) False creek, (*b*) of the Indian reserve of Kitsalno, and (*c*) of English bay, that these be not alienated so as to become permanently owned by any one corporation, public or private body, individual or individuals, but be dealt with in a statesmanlike manner and conserved for all time under such control as may be for the best interests alike of the city of Vancouver as a whole and of the public weal.

'In this connection also the board cannot too forcibly urge that any plan which may be prepared for the improvement of False creek, and for its adaptation to the accommodation of ocean-going vessels or otherwise, should not be limited to the probable requirements of the immediate future, but should be on a broad and comprehensive basis, so conceived that any section thereof which may be undertaken from time to time should each form a part of and ultimately be incorporated in the completed whole, and the board would further remind your honourable commission that the immense and magnificent timber resources of our province, her vast coal areas, and her still undeveloped iron deposits, combine to point to this port as a future

seat of ship-building on an extensive scale; an industry the fostering and encouraging of which is so important to the Dominion that here again is found another strong argument for the free conservancy of our shore-line and for the establishment, under public control, of docking facilities, commensurate with the accommodation of vessels of the largest type.'

Also from the evidence of Mr. Alexander, Mr. Lake and Mr. Jackson (p. 419):

'The Chairman—What accommodation can you offer to other steamers than those of the C. P. R. Company?

'Mr. R. H. Alexander—At the present time there is none.

'Mr. Ashdown—Was there not some trouble a short time ago about Seattle boats not being allowed to come into the docks here because the docks were owned by the C. P. R. Company?

'Mr. Alexander—I think there was some trouble at one time, but I believe it was arranged finally.'

(P. 539):

Mr. Gordon Lake, manager Union Steamship Company—I was away at the time, but I believe that our company agreed to give wharfage to the ship. It was the *City of Seattle*; that was three years ago; she was competing with the C. P. R. Company in the Skagway business, and our people had offered to provide her wharfage. The C. P. R. Company asked us not to do so, and because we took no notice of that, they put a train across the roadway and left it there, thus cutting off our access to the town from the wharf as well as the cargo of the steamship in question. Then we gave up, and told the American company that we could not take them.'

(P. 548.)

'Mr. C. J. Jackson—They sold us a portion of it (water-front) and in that conveyance there is a clause which I understand is in all conveyances from them—that we are not allowed to sell to any railway or transportation company, and there is a limitation as to the use that is to be made of that water-front as long as we own it.

'Mr. Ashdown—What limitation is that?

'Mr. Jackson—That no boat in competition with them shall be allowed to make use of that water-front without permission of the local superintendent of the Canadian Pacific Railway Company. Breach of these conditions cancels the conveyance. And that is binding on us, our heirs and assigns in perpetuity practically.'

A map of Vancouver was received from the engineer of that city, and is attached to this report. Your commission would direct special attention to this map, which shows in colours the different portions of the water-front at Vancouver, owned or occupied by the various corporations and other persons.

Your commission find the facts quoted to be substantially correct, and without any reflection on the Canadian Pacific Railway Company, which laid out and created Vancouver, they still think that such a state of affairs is not in the true interests even of that corporation, while it is to be deplored, both from the standpoint of the city itself and from that of the Dominion at large, that a port of such importance as Vancouver should have its water-front tied up to or controlled by one corporation, especially in view of the importance which it would attain, were proper facilities and free access to all, afforded.

Under present conditions no other railway can find a deep water terminus at that port, but if wishing to compete for the trade, would be compelled to locate at North Vancouver, and to build, at great expense, a bridge across Burrard inlet, some five miles above the present city of Vancuver, and run down to the north side of the inlet, and goods to or from docks or stations at North Vancouver, would have to be ferried across a distance of nearly a mile, or else carried around by team, an average distance of say eight miles.

In accordance with the principle previously affirmed by your commission, viz.:

'That the Dominion of Canada, as it has the care of inter-provincial trade and commerce, and in accord with that duty is continually expending large sums of money in maintaining, bettering and protecting our harbours and waterways, should, in the public interest, own and control the land under, and also that adjoining, the waters of same and reasonably usable in connection therewith.'

Your commissioners would recommend :

(1) That the Canadian Pacific Railway Company be induced to surrender to the Dominion of Canada such portions of the water-front of Vancouver and lands reasonably usable in connection therewith, as in view of the growth of the trade in the future can reasonably to be considered sufficient to allow of free access and use by all who may wish to use the same for purposes of transportation.

(2) That your government proceed to obtain by negotiations, purchase, expropriation or otherwise such other water-front and lands, both on Burrard inlet and False creek, as the position may make it reasonably necessary to obtain.

(3) That the whole of Burrard inlet from the entrance thereof up to the Second Narrows be treated as one port.

(4) That as North Vancouver has a water-front of great importance, which should be conserved in the public interests, the whole of that portion of its water front extending from that now owned and held by the Victoria, Vancouver and Western Railway Company, and intended to be used by them in connection with purposes of navigation, westerly as far as the entrance to Burrard inlet, and the land under and that adjoining the said water-front and reasonably usable in connection therewith (excepting only such portions as are now used bona fide for purposes of navigation) be obtained by the Dominion of Canada.

(5) That so soon as the lands above mentioned are obtained, the whole harbour be laid out on a broad, comprehensive scale, with a view to the future, so that improvements whenever made (now or at various times in the future) will all be done in accord with said plan.

(6) That all water front and lands reasonably usable in connection therewith, now in the possession of or owned by the Dominion government, or that may be acquired by it, as before-mentioned or otherwise, be thereafter owned, held and controlled by it for the public benefit and with a view to the accommodation of all interests, which now, or hereafter, may desire to centre at, or use, the said port.

(7) That so soon as the lands mentioned are vested in the Dominion government, the port, by proclamation of the Governor General in Council be declared a national port, and that at no port or dock (other than dry dock or elevator) charges be imposed by the Dominion government, or allowed to be collected by any officer thereof.

The commission consider False creek an important part of the water-front of Vancouver, and as such it should be considered in the public interests, and, looking to the requirements of the future, should be considered in the scheme for a comprehensive and commodious harbour, but in view of the fact that at the time of the holding of the sittings of your commission in Vancouver, Mr. J. R. Roy, government engineer, was engaged, under orders of the Department of Public Works, in the examination of False creek, with the view of preparing a report with plans and estimates for making that creek a deep water harbour, and as your commission has had no opportunity of seeing the result of his investigations, they do not feel in a position to make any specific recommendations concerning such proposed improvements.

In the course of the sittings in Vancouver the good offices of your commission was asked on behalf of the Vancouver, Westminster and Yukon Railway, which it is proposed to build from False creek to Fort Macleod, a distance of about six hundred miles, and on behalf of which Dominion government aid is asked, but your commission do not feel that they can make a report on the matter, as it does not seem properly to come within their purview, being rather a question of fiscal policy.

VICTORIA.

In dealing with questions connected with Victoria, your commission would call attention to the fact that that city is not only the political capital of the province of British Columbia, but is also the principal city and commercial and financial capital of Vancouver island, and accordingly, parties giving evidence at that point assumed to represent and were entitled to speak for the whole island.

And in view of the fact that the island of Vancouver is of very considerable extent, has large undeveloped resources and a splendid climate, but withal is very little known, your commission have thought well, while dealing with matters of transportation, to quote also a few descriptive facts which are given in evidence at Victoria dealing with the island generally:

'(P. 465)—Vancouver island contains 16,000 square miles; that is to say, as large as the main land portion of the province of Nova Scotia.

'(P. 467)—There is certainly on Vancouver island a very much greater quantity of merchantable timber of the highest class than is to be found in any other part of the world of similar area.

'(P. 470)—Timber which runs from 40,000 superficial feet to the acre upwards can be found in all parts of the island.

'(P. 468)—Copper and copper-gold ores seem to be distributed over all parts of the island.

'(P. 470)—At Quatsino sound you have coal, iron and lime, all within a mile of deep water, where any ship of the world can lie in safety.

'(P. 471)—Vancouver island produces apples, strawberries, peaches, grapes and other fruits.

'(P. 472)—I believe that at least one-third of the island can be utilized in some way in connection with agriculture.

'(P. 469)—The Chairman—But your main reliance will be timber and minerals?

'Mr. Lugrin—Looking to present conditions, timber first, minerals second, agriculture third, but it is quite possible that development may reverse the order. Iron deposits are numerous, and some have been ascertained to be very large. They consist principally of magnetic iron of a very high grade, but there are also deposits of hæmatite.'

The following extracts from the evidence describe the harbour facilities of Vancouver island, and show the views of the people of that island in regard to improved transportation facilities:

'(P. 458)—Board of Trade:—

'On this coast the harbours, which can be utilized in connection with ocean-borne commerce, are:—

'Victoria—This harbour consists of two parts, the inner harbour and outer harbour. The inner harbour is perfectly landlocked, but requires to be deepened before it can be extensively utilized in connection with ocean-borne traffic. By the outer harbour is meant, that water area bounded on the west by Macauley point and on the east by Holland point. There is already docking accommodation in the outer harbour for steamers drawing 29 feet of water, and, by the construction of breakwater, this could be extended so as to provide extensive and perfectly-protected facilities for vessels of any size or draught.

'Esquimalt—This harbour is adjacent to Victoria. It is safe, excellent and commodious. The general depth is six fathoms. The Royal Roads, lying between Albert head and the entrance to Esquimalt, afford great anchorage for a distance of three miles anywhere within three-quarters of a mile from the shore.

'The approach to Victoria and Esquimalt from the ocean is by way of the strait of Juan de Fuca. This strait has the very great advantage resulting from the fact

that soundings can be obtained at a distance of thirty miles out at sea from its entrance. Through the centre of the strait there is a deep water zone running east and west, having 100 fathoms of water. This continues until the Race rocks are passed, where vessels turn northward to reach Victoria or Esquimalt. Beyond this point the depth decreases to 60 and 70 fathoms. The water shoals rapidly on either side of the deep water zone. It is said that on no part of the Pacific coast of North America are conditions of this kind so favourable to navigation to be found.

'Barkley Sound—This is an extensive arm of the sea 30 miles west of the entrance to the Strait of Juan de Fuca. It has several arms, the principal being Alberni canal, which extends inland 23 miles. Numerous islands lie at the entrance to the sound, the principal passage between them being what is called the Middle channel, three miles wide in the narrowest part, with from 30 to 54 fathoms of water. The evidence of shipping men is to the effect that Barkley sound is one of the best and safest ports on the Pacific coast.

'Quatsino Sound—This is the most north-westerly of the deep inlets characterizing the west coast of Vancouver island. It penetrates the island 25 miles and has three arms. There is a good depth of water throughout the whole sound. The entrance is easily recognized from the ocean by reason of high mountains, and sailing ships can enter it under almost any weather conditions.

'(P. 478)—Mr. Lugrin:—

'Quatsino sound is not only theoretically but actually for navigation purposes, as near the Orient as Port Simpson, while the distance from Yellow Head pass to Quatsino sound is little, if anything, greater than the distance from Yellow Head pass to Port Simpson, while the advantages of these island ports are such that they greatly out-weigh the disadvantage of the small additional rail haul.

'(P. 460)—The whole ocean coast of Vancouver island is nearer Yellow Head pass than Port Simpson or any other port on the mainland north of the entrance to Sardiner channel. It is submitted that the nature of Yellow Head pass and its relation to the greatest producing areas in the prairie region of Canada, mark it as adapted in an especially favourable degree to become one of the principal gateways of commerce through the mountains.

'(P. 462)—Board of Trade:—

'That it is desirable, in the interests of Canada and the whole Empire that the available routes by which the ocean front of Vancouver island can be reached from railways on the mainland should be thoroughly investigated.

'(P. 456)—I. W. Patterson:—

'There is no doubt that the time is coming, and it may be nearer than any of us think at the present time, when it will be deemed of sufficient importance to the whole Dominion that a bridge should be constructed between the island and the mainland, and we think it would be well for the government to obtain all the information possible in regard to that matter. Such a bridge should be under the control of the government and free to all railways.

'(P. 462½)—Board of Trade:—

'In his report to the Dominion government in 1877, Sir Sanford Fleming said: "An unbroken line of railway from the railways in the eastern provinces to one of these harbours on the outer coast of Vancouver island would be highly desirable. All the difficulties of navigation, to be encountered in reaching the mainland, from the ocean, would then be avoided. The exigencies of the future may render a continuous line of railway to the outer shore of Vancouver island indispensable at any cost. And the Board respectfully suggest that in view of the rapid development of Western Canada and the great progress inaugurated in the Orient, the exigencies to which Sir Sandford referred, if not actually at hand, are likely soon to arise, and therefore, that no time should be lost in arriving at a full understanding of the nature of the problem to be faced in reaching the desired result.

(P. 475)—Mr. Lugrin:—

'Three lines of railway have been surveyed from Yellow Head pass to Esquimalt and to Quatsino sound by way of Bute inlet, and crossing at Seymour narrows. One of these lines is shown in the map which accompanies that report of 1877. After passing through Yellow Head pass, that line runs northwesterly, following the valley of the Fraser river and when it comes to the great bend of the Fraser it turns and runs southwesterly until it reaches Bute inlet, where it was to cross by way of Seymour narrows to Vancouver island. The distance by this route from Edmonton to Quatsino would be 1,200 miles.

'The Chairman—How does that correspond with the distance from Edmonton to Vancouver?

'Mr. Lugrin—The distance from Edmonton to Vancouver at present is 838 miles. A second line of railway has been surveyed from this same point, which, instead of going north to the great bend of the Fraser, goes south by way of the Thompson river near to the mouth of the Clearwater river, whence it goes in as nearly a westerly course as possible to Bute inlet. The distance from Edmonton by way of this route to Vancouver would be 863 miles, about the same as from Edmonton to Vancouver by the present route.

'(P. 477)—Mr. Lugrin:—

'What the Victoria Board of Trade would like is "that the commission would recommend that a further examination of this country be made, in order that the best line from Yellow Head pass to Bute inlet may be found."

'Supposing that a good route is found for a railway from Yellow Head pass to Vancouver island, it has been demonstrated that either Victoria, Esquimalt, Barclay sound or Quatsino can be utilized for a railway.'

Your commission would call attention to the complaints made mainly on behalf of the ship-building and repairing works, saw mills, &c., of the want of a sufficient depth of water in the inner harbour at Victoria:—

'(P. 848)—No ships drawing more than 11 feet can safely navigate the inner harbour. There are a number of iron works here. The principal one is the Victoria Machinery Depot. There are three other iron works, all of whose business is ship repairing and ship-building.'

'(P. 486)—There is urgent need for locally owned vessels to profitably handle the two most important products of this province, namely: coal and lumber. Both of these products being bulky in nature, require a considerable number of vessels for transportation to foreign markets. Vessels of this class could all be built here if we had the needed space and depth of water to float them in.'

'(P. 487)—In answer to the Chairman.

'We want the channel both widened and deepened. The Marine Works have $100,000 embarked in capital on plant alone. . . The Albion Iron Works have an invested capital of about a quarter of a million. . . . But they cannot get the ships to their wharfs for want of greater depth of water and greater width in the channel.'

'(P. 489)—A joint committee of the Victoria Board of Trade and Municipal Council, passed the following resolution:—

'(a) That the harbour from its entrance off the outer wharf to Point Ellice bridge within the lines marked red on the accompanying map, should be deepened to a uniform depth of 25 feet below water zero as recently determined by the tidal survey.

'(b) That the northern extremity of that portion of Laurel point belonging to the provincial government, now below high water mark, should be blasted off and no wharf or any other interferences with the free channel through the narrows should be permitted on that side of the said point.

'(c) That the material excavated should be used in the formation of the foundation for a breakwater from Holland point to Brotchie ledge.'

Your commission would, in view of the facts adduced, recommend:

That a further and exhaustive exploration and survey be made in order to find the best route from the plains of Alberta to an ocean port on the west side of Vancouver island.

That in case of the building of a bridge at Seymour narrows or elsewhere, connecting the mainland of British Columbia with the island of Vancouver, such bridge and the approaches thereto, and the land on both sides of the water running back from same, such distance as may be deemed reasonably necessary to allow of free access thereto, be owned and controlled by the government of Canada, with the view of according equal rights on and over such bridge and its approaches, to all railways desiring to use it.

That in view of the fact that in many cases the present charges for pilotage appear to be without warrant of law, but rather to be based on the desire of the Board of Pilotage Commissioners to get away from the injustice of having to make heavy charges for service not rendered (many masters regularly and by preference, taking out or bringing in their own vessels, whether paying the charge or otherwise), your commission would recommend that the regulations governing pilotage be amended to suit the circumstances of the port, and that no charge be made while no pilot is employed, in cases where it appears to be reasonable to allow all masters, or, those of certain boats or lines of boats, to bring in their vessels without the aid of a pilot.

That in accordance with the principle heretofore affirmed, the government of Canada proceed to obtain by negotiation, purchase, expropriation or otherwise, all such lands on the water front of the port of Victoria, or reasonably usable in connection therewith, as are owned or controlled by the province of British Columbia or the city of Victoria or other public bodies, together with such other lands as the circumstances show to be reasonably necessary, and all land obtained in the manner above described or otherwise, and all now in possession of or owned by the Dominion government, be thereafter owned, held, administered and controlled by the government of Canada for the public benefit, and with the view to the accommodation of all interests which now or hereafter may desire to centre at or use the said port.

That, as soon as the land above mentioned has been obtained, a competent engineer be appointed to make a full report on the improvements asked for in the inner harbour, as well as on the question of breakwater accommodation so as to enable your government to deal with the matter of improvements and to decide what are advisable for immediate construction.

NEW WESTMINSTER.

In view of the large lumber and canning industries at this point, it is advisable to keep up a standard of depth sufficient to allow of sea-going vessels reaching the harbour. The evidence given is to the effect that the Department of Public Works states that there is 27 feet in the channel, and it is presumed that if that depth was maintained it would be ample, but because of the character of the river there is much work to be done in keeping bars from forming in it, and in keeping the north arm in reasonable shape for the work to be done on it, and your commission would recommend that the dredge now at work on the river could do more work with a double shift, and that such steps be taken as may be necessary to obtain a chart of the harbour, and channel leading thereto, and thereby allow of insurance being obtained at reasonable rates.

PACIFIC COAST TERMINALS OF G.T.P. AND C.N. RAILWAYS.

That in view of the principle already affirmed of government ownership and control of lands reasonably usable in connection with navigable waters, it is especially desir-

able that in establishing a harbour at the deep water Pacific coast terminus of the Grand Trunk Pacific Railway, as also of the Canadian Northern Railway, that such railways be allowed to own and retain only such amount of the water front as is reasonably necessary for navigation in connection with their respective systems, and all the rest of such water front be obtained or retained as the case may be, and thereafter held, owned, administered and controlled by the government of Canada for the public benefit and with the view of affording access to all who may wish now or hereafter to centre at or use said ports.

All of which is respectfully submitted,

ROBERT BEFORD, Chairman,
J. H. ASHDOWN, Commissioner.

Winnipeg, December 11, 1905.
C. N. Bell, Secretary.

FIRST INTERIM REPORT.

Montreal, January 21, 1904.

May it please your Excellency :

In connection with the situation existing at the port of St. John, N.B., your commissioners on transportation have the honour to report that, in the prosecution of the work entrusted to them they arrived at the city of St. John on the 29th day of January, 1904, where they were received by the Mayor and the President of the Board of Trade, and held sessions, open to all persons interested, on January 9 and 11. It was found that besides the regular traders in the port, on January 9, four ocean-going steamships were being loaded and unloaded at Sand point, the terminus of the Canadian Pacific Railway Company, on the west side of the harbour.

The harbour of St. John having an area at high water of 1,700 acres, was granted to the city in the year 1785 by Royal Charter, a clause of which reads as follows :—

'And we do further, of our especial grace, certain knowledge and mere motion, give and grant unto the said mayor, aldermen and commonalty, and to their successors, that they and their successors be the conservators of the water of the river, harbour and bay, of the said city, and shall have the sole power of amending and improving the said river, bay and harbour, for the more convenient safe and easy navigation, anchorage, riding and fastening the shipping resorting to the said city and for the better regulating and ordering the same; that they, the said mayor, alderman and commonalty, and their successors, shall and may, as they shall see proper, erect and build such and so many piers and wharfs into the said river, as well for the better securing the said harbour and for the lading and unlading of goods, as for the making docks and slips for the purpose aforesaid, and that they shall and may have, receive and take reasonable anchorage, wharfage and dockage, for the same, without any account thereof to be rendered to us, our heirs or successors.'

The harbour is close to and open from the Bay of Funday by a channel, easy of access, but which would be improved by dredging and straightening as reported on to the Department of Public Works by the Dominion engineer, resident at St. John.

On the east side of the harbour is situated the terminal equipment of the Intercolonial Railway, including an elevator, wharf and shed, suitable for loading ocean

steamers, and as well as a number of small private wharfs for local traffic held by the city and individual owners.

The west side of the harbour known as Carleton or West St. John, is connected with the city proper by a steam ferry boat, a traffic bridge over the St. John river and a cantilever railway bridge.

The attention of your Commissioners was given particularly to the west side as being the terminal of the Canadian Pacific Railway (and South Shore Railway, which with its equipment has been leased to the Canadian Pacific Railway Company for 990 years).

The Canadian Pacific Railway Company has a grain elevator, with suitable conveyors, with a capacity of about 1,000,000 bushels, which property is exempt from taxes for twenty years. Ships' berths Nos. 3 and 4, are held by the Canadian Pacific Railway Company by lease from the city of St. John ; vessels are loaded by the Canadian Pacific Railway Company and the evidence proves that the wharf space is inadequate for even the present traffic and that more accommodation is urgently required. In order to provide for additional traffic, the city authorities have now under negotiation with the Canadian Pacific, an agreement by which they purpose to provide three or four more ships' berths by building a wharf to run parallel to, and on the north side of the present berths, Nos. 2, 3 and 4. An amount of dredging estimated at 1,000,000 cubic yards, must be done before this proposed wharf can be built and the City Council and the Board of Trade have petitioned that this work be undertaken by the Dominion government. The city proposes to build the wharf and lease it to the Canadian Pacific Railway with a renewable clause.

Between the proposed new wharf and Navy island, to the north, at present occupied by the steam ferry landing and some local wharfs, there is room for ten or twelve more steamship berths of sufficient size for ocean vessels, by building suitable wharfs. To the south of Sand point and toward Partridge island, at the mouth of the harbour, and the breakwater on the southwest, there is room for a still larger number of berths. It was represented to your commissioners that a large number of wharfs could be built around Courtnay bay if a long breakwater were constructed there.

The city of St. John claims to have expended the sum of $750,000 on harbour improvements.

Your commissioners are convinced that with the increasing volume of traffic passing through the port of St. John, increased accommodation and facilities are urgently required.

In view of the foregoing statement of facts, your commissioners have the honour to recommend that the dredging necessary to be done, at the site of the proposed new wharf, be undertaken and carried out by the Dominion government, and that the city authorities be advised at the earliest possible date in order that they may arrange this winter for the getting out of the required timber, which timber may be ordered at once if the work is to be completed in time for next season's traffic. Your commissioners beg to point out that the work of dredging might be commenced at once with the two dredges now lying at St. John, and finished by a third dredge, having a capacity to reach a depth of about 60 feet at high water.

Your commissioners, in making the above recommendation, bear in mind that dredging work of the same kind has already been done in St. John harbour by the government. While your commissioners consider that this work should be done by the government in the harbour, which is the property of the city of St. John, they do so on account of the urgent present necessities of the situation. Looking to the future of the port of St. John, with its restricted area and the possibility of other railways seeking accommodation there in the near future, necessitating additional expenditures, your commissioners would suggest that in the future, before the city of St. John sells, leases or alienates in any way, harbour frontages the city authorities should communicate with the Dominion government and secure its sanction to such action. Unless some agreement of this kind be entered into, or the port placed under

the control of Harbour Commissioners, it could hardly be considered to be in the public interest for the port to receive further public aid.

As an example of the expenditure which may be required to be made in the future, it may be pointed out that it would be advisable to push back the harbour line on the west side from Sand point to Partridge island, thus giving room for many additional wharfs.

A comprehensive scheme of future improvements should be submitted by the city of St. John to the government.

Your commissioners further recommend that the government extend the present breakwater up to Partridge island and that, as soon as possible, the necessary dredging be done to straighten out and deepen the entrance to St. John harbour as reported on and recommended by Mr. Shewen, C.E., the resident engineer of the Department of Public Works at St. John.

Your commissioners have, to date, visited the ports of St. John, St. Andrews, St. Croix river up to St. Stephen, Halifax, Sydney, Glace bay, Louisbourg and North Sydney. At the town of New Glasgow, Nova Scotia, we held a session and received from representatives of the places, evidence and information regarding Pictou, Truro and Country harbour. A full report on all of the above places will be made in due course.

All of which is respectfully submitted,

For the commissioners,

JOHN BERTRAM, Chairman.

SECOND INTERIM REPORT.

TORONTO, ONT., May 6, 1904.

May it please Your Excellency:

We have the honour to report that in carrying out the work entrusted to us as your Commissioners on Transportation, we visited on the 3rd instant, the town of Port Colborne, Ontario, at the inlet of the Welland canal on Lake Erie.

This port, situated at the eastern end of deep water navigation on the upper lakes, and the beginning of the St. Lawrence system of canals, occupies an important position on the water route from Fort William to Montreal. Passing along the level stretch of the canal from Thorold to Port Colborne, about thirteen miles in length, we were informed by the engineer in charge that between Port Dalhousie and Port Colborne, the whole length of the canal had now the full depth of fourteen feet, and that only two more centre piers required to be taken out from the bridges over the canal, when there would be no obstruction to any width of vessel passing through.

Arriving at Port Colborne our attention was given to the condition of the harbour, and its facilities for furthering transportation by the St. Lawrence channel.

In our examination we were favoured with the assistance and advice of Mr. J. L. Weller, Superintending Engineer of the Welland canal; Mr. A. J. Grant, the Resident Engineer of Port Colborne, and Mr. L. Coste, Engineer of the Public Works Department.

Around the lake front at Port Colborne the water is shallow, and the entrance to the canal has required a great deal of dredging through limestone rock. The entrance to the canal, from the new elevator piers to the guard lock, is about 4,600 feet long, with a depth of 16 feet and 230 feet wide, except at the old east pier. Along the north end of this stretch on both sides, is situated the town of Port Colborne, and on the east side the small Grand Trunk elevator. At a distance of 4,600 feet from the guard lock the new elevator piers have been built; the entrance is much wider

and opens toward the lake and all around the piers there is a depth of 22 feet, the rock dredging is still being continued to give ample facilities for steamers turning.

The elevators are built of concrete on rock foundation, their length being 700 feet by 200 feet in width, with a connecting pier on the north side of 200 by 100 feet. They are distant from the shore line about 2,000 feet, connected by an old pier which needs to be repaired. To the southwest of these new piers, a breakwater has been built 4,500 feet long, and situated 1,650 feet out into the lake, which will, no doubt, guard the site from any southwest or south storm, but leaving it still exposed to the southeast. To guard this, the Department of Public Works have plans prepared for another breakwater to the southeast, 2,400 feet long, and commencing 600 feet from the eastern end of the present breakwater, which when built will fully shelter the harbour.

The question of how to utilize the existing canal system is important enough to merit the most careful consideration.

At the present time, with no facility for discharging cargoes at this port, the use of the route from Fort William to Montreal is confined to steamers drawing not more than fourteen feet and of a size to pass through the locks, giving a maximum capacity of 75,000 bushels of wheat, and to tow barges hauled by tugs or by steam barges of full canal size, 256 feet long by 42 feet wide, leaving entirely out of account the large steamers passing through to Sault Ste. Marie canal and carrying 200,000 bushels of wheat and upwards, able to carry grain, on a 20 foot draught of water, cheaper than any smaller steamer. The building of these large steamers is a development since the Sault Ste. Marie canal was deepened. They have cheapened freights, and if the St. Lawrence route is to have equal opportunities with the American, facilities must be provided for the discharge of cargo from large steamers at Port Colborne; whence it can be sent to Montreal in vessels of canal size.

Your commissioners have therefore the honour to recommend:

That the work of putting in a suitable foundation and the erection of an elevator at Port Colborne harbour be proceeded with at once, the capacity to be not less than 1,000,000 bushels, and placed so that additional storage bins can be added when found necessary;

The elevator to be of the most modern and approved type, giving the quickest despatch to vessels loading and unloading, provision also being made for loading railway cars when connection is made. The government to retain the ownership, thus avoiding any possible complication or deflection of traffic from the St. Lawrence route; the rates for elevation to be as low as possible, the main object being to encourage the route, rather than make a profit for the elevator;

That the building of the south-east breakwater should be proceeded with at the same time, assuring the safety of steamers when unloading;

That the old pier stretching from the elevator lighthouse to the shore line now in a dilapidated condition, should be rebuilt and carried to a depth of 22 feet to provide for future dredging contingencies, and that the pier on the east side of the channel, spoken of as the old east pier, be taken out, as an obstruction to navigation;

That action should be taken to have the two remaining centre piers, under the railway bridges over the canal, removed as soon as possible.

Although there are two piers provided on which to erect elevators, your commissioners do not think advisable to build more than one at present, have it tested and see what effect it has in increasing the traffic on the St. Lawrence system, which we feel assured will be so beneficial as to require additional elevator capacity at an early date.

All of which is respectfully submitted,

For the commissioners,

JOHN BERTRAM,
Chairman.

SESSIONAL PAPER No. 19a

THIRD INTERIM REPORT.

OTTAWA, June 15, 1904.

His Excellency,
The Governor General in Council,

SIR,—Your Commission on transportation beg to submit an interim report on the following, viz.:—

The matter of the prolongation of the season, during both spring and fall, of navigation on the lower St. Lawrence river, has for years engaged the attention of ship-owners, shippers and others interested in ocean and river navigation.

The Honourable the Minister of Marine and Fisheries having referred this matter to your commissioners for an expression of their judgment and opinion and forwarded to them a report on the subject prepared by Mr. F. W. Cowie, C. E., dated April 21, 1904, and which especially brings up for consideration the benefit that would accrue from the use of ice-breaking steamers, your commissioners beg to report:—

1. In consideration of the matter submitted, as also of the general question of transportation, your commissioners have visited the ports of Montreal, Sorel, Three Rivers and Quebec, for the purpose of examining the physical features of the St. Lawrence and the various harbours, and when there, received statements and general evidence from engineers, shippers, merchants, navigators, pilots and others who were competent by knowledge and experience to give expert information and opinions.

2. Your commissioners descended the river from Montreal on the steamer Frontenac, placed at their disposal by the Department of Marine and Fisheries, as far as Isle au Coudre, some 60 miles below Quebec, and made such critical examination as was possible under the circumstances, especially noting the work recently done by the department to make the channel safe for vessels passing up and down, and also to the dredging carried on by the Department of Public Works, with the object of providing a 30-foot channel, which work, with the regular sweeping of the channel lately inaugurated, will undoubtedly give confidence to navigators, ship-owners and underwriters and also insure against any erratic obstruction of the channel.

3. The evidence, which was freely and frankly given to the commissioners, by all persons called upon, demonstrates that the River St. Lawrence may be navigated during the entire year in that section extending from Isle au Coudre, about 60 miles below Quebec, to the gulf. In case, which is most unlikely, that an obstruction from ice below Isle au Coudre occurred, an ice-breaking steamer was at hand to render service, it would give full confidence to the pilots and mariners. Below Isle au Coudre both the river and the ship channel are wide and deep and generally unobstructed by ice as far as Father point.

4. Between Isle au Coudre and Quebec the conditions are different from those existing lower down the river. The channel below Isle au Coudre at present used when ascending is over towards the north shore, but vessels above that point make what is known as the Southern Traverse, mariners then being guided by two block light-houses, ordinary light-houses, gas and other buoys marking the channel up to the Pillars. This channel does not often freeze over; but it is sometimes obstructed by floating ice, and it is here that an ice-breaking steamer would be required to ensure winter navigation and remove any possible danger of a vessel being frozen in. After passing through this Traverse, a distance, of say, ten miles, navigation to Quebec is easy, and in proof of this statement it may be said that the ferry steamers regularly ply between Quebec and Lévis during the entire year.

5. The river between Quebec and Montreal presents a somewhat different proposition, the evidence being to the effect that navigation could now be prolonged from November 20, the present understood date, to December 10. But it may be stated that the opinion was unanimous that, with the aid of an ice-breaking steamer,

the channel between Montreal and Quebec could be kept open for navigation for at least two weeks longer than at present. The resident engineer, Mr. Cowie, holds that when the, at present, contemplated aids, of range lights, &c., are provided, navigation could be safely carried on after the gas and other buoys are removed, such work of removal to be easily performed by the ice-breaking steamers.

6. In the spring, the main obstruction to navigation of the whole river proper for a period of two weeks earlier than at present, is the ice jams at Cap Rouge and other points between Montreal and Quebec. The ice forming at Cap à la Roche, and other points breaks away from the shores from time to time and, on occasions forms a jam at Cap Rouge, where is the narrowest part of the river. It is claimed that an ice-breaker stationed between Montreal and Quebec could be utilized during the winter to break this jam as it forms and so keep the river free, and that this would have the incidental, but very valuable, result of protecting the people of the parishes, resident on the lower banks of the river, from Cap Rouge to above Montreal, where at present, owing to the ice block at Cap Rouge, frequent flooding takes place, with the consequence that immense loss and misery follows to these people.

7. In view of the foregoing, your commissioners have the honour to recommend that ice-breaking steamers, the proper size and character of which are a matter for the engineers of the government to decide, be secured and placed in operation by the government at the points defined in the report of Mr. F. W. Cowie, engineer of the Department of Marine and Fisheries, dated April 21, 1904, a copy of which is attached hereto.

I have the honour to be,
On behalf of the commissioners,
Your obedient servant.

JOHN BERTRAM,
Chairman.

REPORT OF MR. F. W. COWIE, C.E., ATTACHED TO THIRD INTERIM REPORT.

PUBLIC WORKS OF CANADA.

RIVER ST. LAWRENCE SHIP CHANNEL,
OTTAWA, April 19, 1904.

COLONEL F. GOURDEAU,
Deputy Minister of Marine and Fisheries,
Ottawa, Ont.

SIR,—I beg to present, as desired by the Honourable the Minister of Marine and Fisheries the following memorandum:—

Proposed Amelioration of Winter Conditions on the River St. Lawrence, from Montreal to Quebec and the Sea.

Present physical conditions.
Floods.
Winter navigation.
Present recommendations.
The establishment of local navigation below Quebec.
Lengthening of navigation season above Quebec, and the amelioration of the ice flood conditions. Plant.

I am, sir,
Yours obediently,

(Sgd.) F. W. COWIE.
Engineer in Charge.

Present Physical Conditions.

Ocean-going navigation to Montreal practically ceases on November 20. Occasionally a belated ship sails from Montreal a week later, but at considerable risk.

The usual date for commencing the taking up of the buoys is November 25. The risk attending late sailing is the possibility of being frozen in, in some unprepared winter quarters. There is also the danger attending navigation after the buoys and light-ships have been removed, or which may be possibly dragged out of position by the ice.

The last ships to sail never lack freight. The marine insurance, however, owing to the greater risks attending these late sailings, as well as the possibility of having to hurry the ship to Quebec before being loaded, have discouraged any attempt to prolong the season.

For the last year or two it has been the custom for the agents of the belated ships to ask the government steamers to convey their vessels to Quebec. Although the best steamers of the ship channel fleet have been assigned to this duty, they are in no way ice-breakers, and some day they may lead a ship into danger and be unable to help her.

Below Quebec, navigation closes in autumn, about the same time as at Montreal or a few days later; not so much on account of the ice, as for lack of business.

The permanent pier light-houses at the Traverse have greatly minimized any actual danger for navigation below Quebec during the whole of the month of December. Snow-storms are no worse in December than they are during the last half of the month of November.

When the buoys are removed it is only necessary to wait for fine weather and high tide, to navigate the only difficult portions between Quebec and Bic, a distance of about 160 miles.

The opening of navigation in the spring is delayed by reason of the uncertainty of the date of the breaking up of the ice and the fact that few orders for sailing to the St. Lawrence ports are given before actual reports are received.

In the spring, ocean-going navigation commences at Quebec and Montreal at about the same date.

The weather during the month of April is usually very fine. The days are long and for weeks at a time, clear. Fogs are almost unknown. Snowstorms last a very short time.

It is not the temperature, but the actual presence of immense quantities of jammed, packed ice which prevents the opening of navigation about the first of April every year.

Floods.

In general, the St. Lawrence river floods are entirely due to ice and frazil.

At neither the winter nor the spring floods, is the supply of water in the river at its greatest.

High water in Lake Ontario comes in about the end of May. In the rivers flowing into the St. Lawrence from the north, it occurs about the same time. The fluctuations in level due to this actual high water during the season of navigation, would never be sufficient to cause a flood.

The following table gives approximately the height above ordinary low water, of floods due to ice, and of high water when the river is at its maximum discharge:

	Floods due to ice.		High river level.
Laprairie	22 feet	Above	6 feet
Verdun	22 feet	ordinary low water	6 feet
Montreal	27 feet		13 feet
Longueuil	25 feet		13 feet
Longue Pointe	22 feet		13 feet
Sorel	19 feet		12 feet
Three Rivers	20 feet		13 feet
Batiscan	22 feet		15 feet

The Royal Commission of 1886 reported that in its judgment the floods in Montreal never reached dangerous dimensions except owning to the anchor ice or frazil which, manufactured above the city and passing down, found a lodging place under the ice where it remained in cold storage until the actual breaking up of the ice jam.

The frazil does not remain in open water or in a strong current.

In the spring, before the breaking up of the ice, the frazil under the ice directly below Montreal, amounts in quantity to more than double that of the actual ice. At the moment of the actual breaking up of the ice, the frazil disappears in an uncertain manner, but immediately, and without any bad results.

At the time of writing, the conditions on the shores of the River St. Lawrence between Montreal and Grondines, a distance of over 100 miles, are deplorable owing to the floods.

The misery, danger and anxiety, as well as the actual damage is only too well known. Were it unusual or unexpected, it would be considered a calamity.

The city of Montreal is protected by a guard wall or dyke. Even there, however, the position is not without danger. In an ice jam the water might easily rise higher than it did in 1886, when it reached 27 feet above summer level and spilled over the top of the wall.

It is not practicable to protect the two shores of the St. Lawrence at all danger points by a wall or dyke.

To prevent the floods, therefore, it will be necessary to eliminate the cause.

Winter Navigation.

In March, 1900, a committee of the Quebec Harbour Commissioners investigated the feasibility of establishing winter navigation in the Gulf and River St. Lawrence.

'The committee came to the conclusion that the Gulf and River St. Lawrence can be safely navigated during the winter months with first-class iron or steel steamers. Additional landmarks and extra care to be exercised in avoiding a run in snowstorms between Bic and Quebec.

'The committee were also of opinion that the formation of an ice bridge at Cap Rouge tends naturally to lessen the quantity of ice and the difficulties to be overcome between Quebec and Bic.'

Whether ocean navigation to Quebec, throughout the whole winter, would be a commercial success or not now, it is difficult to say. The time when it will be successful will certainly come soon.

The whole of the north shore below Quebec from Ste. Anne de Beaupré to Labrador is practically cut off from any communication during the winter, except by vehicles.

A ferry service has lately been established between a point on the Intercolonial Railroad and the north shore at Murray Bay. A better service is required.

Until a railroad is built the necessity for a steamer service, connecting Quebec and the important points on the north shore, is becoming every year more apparent. The inauguration of this service by a suitable steamer would settle the feasibility of winter navigation to Quebec, or of navigation for a very much lengthened season.

The question of winter navigation between Quebec and Montreal has been thoroughly investigated and discussed.

The Royal Commission of 1886, reported as a measure for preventing floods that ice-breaking tugs be used to break up and allow the current to carry away tremendous quantities of ice which form and pack to a great thickness during the month of December.

T. C. Keefer, C.M.G., C.E., in his presidential address to the Royal Society of Canada, in 1898, on winter navigation, remarks as follows:—

'It is at least doubtful if anywhere in the St. Lawrence, greater difficulties would be encountered than those which have been so successfully overcome for the last nine years, on Lakes Michigan and Superior, where there is no assistance from current or tide to carry off the broken ice.'

'The early closing of the St. Lawrence has been given as a reason why 75 per cent of our Manitoba wheat was exported from New York last year, and only 25 per cent from Montreal. Whether this is correct or not, there can be no difference of opinion as to the importance to Canada of an extension of the length of the season of navigation if only for one month and also as to the value of the earliest possible reopening of navigation in the spring, which would follow a diminished ice-pack.'

'The winter navigation of the Lower St. Lawrence is, in these days of steel and quadruple expansion, practicable; and we cannot say how soon it may be profitable or necessary.'

'An open channel, in winter, would prevent the flooding of parishes below Montreal and would be invaluable for defence, or in case of interruption to transmit from United States sea ports.'

John Kennedy, C.E., Chief Engineer of the Montreal Harbour Commissioners, in his report of December 24, 1900, reports in favour of preventing the ice from forming at Cap Rouge.

He estimates:

'ten days the average delay in the opening of navigation from the sea, which may be fairly considered as caused by the holding on of the Cap Rouge ice jam.

'An ice-breaking boat of the power of the "Stanley" could, by occasional work at proper times, easily eliminate this delay; by additional work she could keep open, all winter, the channel up to the lower end of Lake St. Peter; and the same, or a more powerful boat, by more constant work, and the skill which would be gained by experience, would not only keep open the navigation channel through to Montreal, but as was pointed out by the Montreal Flood Commission of 1887, it would, by breaking up the ice at proper places and times, prevent the formation of heavy ice jams and thereby prevent the disastrous winter floods of which they are the primary cause.'

PRESENT RECOMMENDATIONS.

The establishment of local navigation below Quebec.

For this service a steamer would be required very much of the type of the vessel described in the letter to William Power, Esq., from the Sir W. G. Armstrong, Whitworth & Company, Limited, of date March 29, 1904, the price for which, delivered on the Tyne, was placed at £31,000.

With a steamer of this type, a very effective commercial service could be given to the important points on the north shore below Quebec, now isolated.

This steamer could be constructed so as to be suitable for lighthouse supply service or buoy work during the summer.

A few aids to navigation would be required after the buoys were removed, and all the lights would be required to be kept in operation.

The lengthening of the navigation season between Quebec and Montreal and the amelioration of the ice flood conditions.

To attain these results it would be necessary to prevent the formation of the ice bridge at Cap Rouge and to keep the channel open throughout the winter up to Batiscan or possibly Three Rivers.

The prevention of the ice jam at Cap Rouge would not be a difficult matter.

An investigation was made by the Public Works Department in 1903, and the results show that:

The formation of this ice bridge is the result of a large field of ice being dislodged by the high spring tides from the banks opposite Ste. Croix and floating down intact with the falling tide is jammed in the narrows at Cap Rouge.

The ice is not thick, nor packed. If taken within two or three tides, it would not require much of an ice-breaker to break through and destroy the bridge.

The danger of this ice bridge results from its presence when the ice from Batiscan and Three Rivers comes down and is stopped by it, the whole forming a mass of ice of immense thickness which becomes arched in the narrows and frequently remains after the river is elsewhere clear until the high tides near the end of April.

It is also believed that with a suitable ice-breaking steamer, aided by a dredge tug, armed for the service, there would be no difficulty in preventing the ice jam from forming at Cap Rouge, and in keeping the channel clear throughout the winter up to Batiscan and probably Three Rivers.

The steamer would also be available to convoy or go to the aid of commercial steamships between Quebec and the Traverse.

During the summer she would be fully occupied in sweeping the channel above and below Quebec, and in attending the proposed dredging of either the north or the south channel, below Quebec.

Between Three Rivers and Montreal it is considered that, for the present, it would only be advisable to keep the channel open and convoy steamships for about two weeks later in the autumn than navigation is now continued.

In the spring, as soon as the fine weather sets in, and the ice is formed over the snow, another ice-breaking steamer similar to the one to be stationed at Quebec, and aided by a similar dredge tug, could start from Sorel and steam through Lake St. Peter to Three Rivers.

Returning, they could break up the ice and allow the current to carry it away, and continue this to Montreal.

After one season's experiment the success of this, or failure, would be demonstrated.

It is believed that by this means navigation could be lengthened two weeks in the autumn and two weeks or a month in the spring.

The removal of the immense masses of ice three weeks earlier each spring would certainly be of benefit to the climate in the Montreal district.

This second ice-breaking steamer could be constructed suitable for the buoy service between Montreal and Quebec, during the summer.

For the successful carrying out of this work between Quebec and Montreal without any buoys, some of the contemplated aids to proposed night navigation would require immediate construction.

Division IV., Quebec to Batiscan—

Very few changes would be required.

Division III., Lake St. Peter—

The permanent piers, as proposed for the 30-foot channel, would all require to be constructed at once, as the light ships would be quite unsuitable for either the spring or the autumn.

Division II., Batiscan to Sorel—

Several of the proposed permanent range lights for the 30-foot navigation would require immediate construction.

Division I., Sorel to Montreal—

No changes would be required.

The general dimensions of these two steamers is proposed as follows:—

Length, 160 feet, with a width and depth suitable for a normal draught of ten feet.

For ice-breaking, by water ballast, they could be trimmed down by the stern to a draught of about thirteen feet, with two triple expansion engines, suitable twin propellers for ice work, and the rudder stock protected by steel hood; the vessel especially designed and strengthened, and having six or seven transverse water-tight compartments, a large coal capacity, and comfortable quarters for the crew during the intense cold, it is believed good results would be obtained.

The recommendation of Colonel Anderson that the very best Marine Architect in England should be employed to prepare the designs, particularly recommends itself. He should be fully advised and consulted with, so that the designs should meet local conditions. After the first ship has been built in England, where they can be built in a much shorter time than elsewhere, it might be found advisable to build the second at Sorel from the same or modified designs.

Plant.

1. For local commercial winter navigation below Quebec, occasional ice-breaking, wrecking and lighthouse supply service in summer.

Ice-breaking steamer as proposed by Sir W. G. Armstrong, Whitworth & Company, Limited, strengthened and modified to suit summer services, length about 220 feet.

Estimated cost, delivered, $200,000.

2. For the prevention of the formation of the Cap Rouge ice bridge and work in winter up to Batiscan or Three Rivers, and for summer sweeping of channel above and below Quebec.

A powerful twin-screw, steel steamer especially designed for heavy work in ice, and designed for towing dredges and sweeping in summer.

To be ordered immediately from England and delivered at Quebec in time for keeping Cap Rouge clear next winter.

Length, about 160 feet.

Breadth and depth for draught on even keel, 10 feet.

To be trimmed for ice-breaking, draught 15 feet.

Deck houses to be built in Sorel.

Estimated cost, delivered, $200,000.

3. For aiding navigation in the autumn, and breaking up the ice between Three Rivers and Montreal early in April, and for buoy service between Quebec and Montreal in summer.

An ice-breaking steamer, similar to the one for Cap Rouge, to be constructed at Sorel, on the same designs and specifications.

Estimated cost, $200,000.

F. W. COWIE.

FOURTH INTERIM REPORT.

TORONTO, ONT., July, 6, 1904.

Hon. C. S. HYMAN,
Acting Minister of Public Works,
Ottawa.

SIR,—At the close of the fiscal year your commissioners deem it well to make you a general summary report of the progress they have made in the investigation into the matter of the existing facilities for the transportation of the products of Canada to the markets of the world, and as to what improvements or extensions, if any, are necessary to be made to such facilities.

Your commissioners, upon entering into the investigation, early in January last, concluded that in a general way the problems to be studied grouped themselves naturally; such as winter ports, and traffic through such ports, in the maritime provinces; the St. Lawrence river from Montreal to, and including, the gulf; the canal system and great lakes between Montreal and Fort William, including the projected canals from Georgian Bay, the prairies section of Canada and outlets therefrom both by the St. Lawrence and Hudson's Bay, and lastly, the general situation in British Columbia. While your commissioners had a general knowledge of the conditions prevailing in each of these sections it was found absolutely necessary that they should visit and take evidence as to details, and secure data, at a large number of points, and in pursuance of this necessary action, the following places have already been visited : St. John, N.B., St. Andrews, N.B., St. Stephen, N.B., Halifax, N.S., Sydney, C.B., Glace Bay, C.B., North Sydney, C.B., New Glasgow, N.S., Kingston, Ont., Toronto, Ont., Peterboro', Ont., Ottawa, Ont., Depot Harbour, Ont., Midland, Ont., Collingwood, Ont., Meaford, Ont., Owen Sound, Ont., Port Colborne, Ont., Buffalo, N.Y., Montreal, Que., Sorel, Que., Three Rivers, Que., Quebec, Que., St. Lawrence River from Montreal to below Quebec and up to Prescott.

In addition to the evidence taken and the information secured at these points, a large amount of general data and statistics has been gathered, which is being studied by the commissioners between sessions.

Arrangements had been made to visit North Bay, Fort William, Port Arthur and Winnipeg before this date, so that an examination of the channels of the general eastern movement of traffic would have been completed, leaving only a few points to be visited for specific details, but, owing to unavoidable causes, sittings of the commission at these western points named will have to be postponed until August, when the commissioners have arranged to visit points in Manitoba and the Territories west of Winnipeg, and also the Pacific Coast, for a study of the situation existing in those immense areas.

Interim reports on St. John harbour, Port Colborne and the matter of ice-breaking steamers on the lower St. Lawrence, have already been submitted to His Excellency the Governor General in Council, and the final report of the commission will be submitted as soon as the data necessary can be secured, and the many problems raised by the scope of the instructions given the commission can be thoroughly studied, but it is impossible for your commissioners at the present time to name a definite date. It is the earnest desire of your commissioners to finish their work, in connection with this most complicated subject at the earliest possible date.

All of which is respectfully submitted,

I have the honour to be, sir, your obedient servant,

JOHN BERTRAM, Chairman,
For the Commissioners.

SESSIONAL PAPER No. 19a

FIFTH INTERIM REPORT.

MONTREAL, May 10, 1905.

His Excellency the Governor General in Council,

SIR,—Your Commission on Transportation beg to submit the following interim report in connection with the matter of the necessity of extending, so far as is possible, open navigation in Thunder bay, Lake Superior, and especially of the particular harbours of Sault Ste. Marie, Port Arthur and Fort William.

Your commissioners have had submitted to them, with other evidence, statistics as to the recorded dates of the opening and closing of navigation at Sault Ste. Marie, Fort William, Port Arthur and Duluth, and this information demonstrates that the season of navigation at Sault Ste. Marie, under the present circumstances, is longer than at Port Arthur by an average of nineteen days, and that at Duluth the advantage over Port Arthur averages fifteen days. This advantage is distributed over both the opening and closing of navigation.

A statement submitted to your commissioners by the board of trade of Fort William shows that, for the purpose of this report, the situation in that port, as to the duration of navigation may be taken to be the same as at Port Arthur.

Evidence has been filed with your commissioners by persons actively connected with the port of Duluth to the effect that the immediate harbour there is cleared early in the spring by the large volume of water pouring into it from the St. Louis river. The port being the headquarters of a large towing and wrecking company, powerful tugs are available, and utilized when necessary, in the harbour proper and for clearing a channel out to the open lake, with the result that there is open navigation for a period, on the average, exceeding that of Port Arthur and Fort William.

On April 24 of this year a steel grain-carrying steamer, on arriving at a point some sixteen miles out in Thunder bay from Fort William, encountered the winter's ice sheet in situ, the ice being from a foot and a half to two feet in thickness, and started to force its way through; the passage was made with difficulty and danger, but by 7 o'clock on the following morning the vessel arrived in the open water at Fort William harbour. It is reported that the captain of this steamer left seventeen vessels at Sault Ste. Marie awaiting word that a channel had been opened to Fort William and Port Arthur. As, owing to climatic conditions, there had not been any material change in the character of the ice for probably a fortnight previous to the 24th April, it is held that an ice-breaking vessel could have opened navigation at least a fortnight before this date.

This spring, after several vessels had penetrated the ice barrier and reached Fort William and Port Arthur, the channels cut out by the first arriving vessels closed up again and many freight and passenger steamers, whose captains would not take the risk of entering into the ice again, were delayed for some time, and other vessels on the outside were prevented from reaching their docks. The loss to vessel owners, to persons carrying grain in storage, to the consignees of an immense volume of freight and the country generally, from the absence of a suitable equipped ice-breaking vessel must, this spring, in the aggregate have amounted to a formidable sum.

Your commissioners have been addressed on this subject, especially by the Winnipeg, Fort William and Port Arthur boards of trade, and the representations made by them and others that a properly equipped ice-breaking vessel, with suitable power and strength to overcome, say, two or three and a half feet thickness of ice, should be supplied by the government of Canada, to be utilized in accompanying the first upward bound vessels in the spring from Sault Ste. Marie to Thunder bay, that the vessel might then be utilized by the Marine or Public Works Departments during the summer season, and in the late fall could perform the service of any slight ice-breaking

required at Fort William and Port Arthur prior to its return to Sault Ste. Marie for Winnipeg, after taking off the lighthouse-keeper *en route*.

The point has been pressed upon the attention of your commissioners that in the fall, at the present, navigation is actually closed, not so much directly by the elements, but by the marine insurance regulations which are stringent as regards any extension of their insuring season beyond the date when the lighthouses on the Canadian side of the lakes are closed for the year. Incidentally, in connection with this subject of the extension of the Canadian lighthouse season, it would appear necessary that an arrangement be made by the Canadian government with that of the United States to the end that the United States government light on the Passage island be also maintained to a later date. Vessel men have urged upon your commissioners that this matter be brought to the notice of the government.

In view of the date of the harvesting and shipment of grain in Manitoba and the Territories, it is a matter of paramount importance from a national, as well as a local western standpoint, that every possible aid should be given in the direction of prolonging the period of navigation in the fall at Fort William and Port Arthur. Entirely apart from the importance of the heavy eastbound grain traffic of the spring season, the tide of immigration flowing into the western provinces, together with the wants of the residents in that part of Canada, necessitates the movement, via Lake Superior, at the earliest practicable date in the spring, of enormous quantities of merchandise. Every day gained in the delivery of this freight is of great value to the whole of Canada, and to attain this end all reasonable assistance should be afforded.

Your commissioners having fully considered this most important matter, beg to recommend that the government take early action to secure an ice-breaking vessel for use at Sault Ste. Marie, Fort William and Port Arthur, and such other points where it could be utilized, and that such vessel be so constructed as to be of service for other purposes during the summer.

On behalf of your commissioners,

We have the honour to be,

Your obedient servants,

ROBERT REFORD, *Chairman,*
J. H. ASHDOWN, *Commissioner.*

SIXTH INTERIM REPORT.

WINNIPEG, August 18, 1905.

To His Excellency the Governor General in Council:

SIR,—Your Commission on Transportation begs to submit an iterim report on the following matters:

1st. The advisability of securing from the Board of Railway Commissioners for Canada a postponement of the consideration of the applications of the Canadian Pacific Railway Company for the right to construct certain branch lines on the left bank of the Mission river and the right bank of the Kaministiquia river at Fort William, Ont., as defined in plans filed by the company.

Your commission would point out that if these applications of the Canadian Pacific Railway be granted, and if the Grand Trunk Pacific Railway Company obtain the water frontage shown on its plans, practically all available harbour front in the port of Fort William will be owned or controlled by these companies.

In view of the inevitable requirements of portions of the land in question for the use of railways other than those now located there, for docks for other than existing steamboat lines and for vessels not connected with any particular line, for sites, &c., for elevators or manufacturing establishments, or for other transportation purposes, your commission would recommend that in the public interest the ports of Fort William and Port Arthur, with water lots, and lands adjacent to the water, not yet alienated from the Crown, or which may be acquired by the Crown by purchase or expropriation, should be owned, held, controlled and administered by the Dominion government for the general benefit of Canada.

Your commission recommends that your Excellency's government communicate with the government of the province of Ontario for the purpose of securing its co-operation in achieving this result.

As your commission intends, within a short time, to report finally and at length on this matter, it would further respectfully recommend that until such time as its final report has been drawn up, submitted to, and passed upon by your Excellency in Council the said applications of the Canadian Pacific Railway Company be not granted, and that the expropriation by the Canadian Pacific Railway Company of the lands shown on its plans, filed in connection with said applications, or of any land adjacent to any other river or to the lake in the port of Fort William, be prevented.

Your commission begs to draw to your attention that the applications of the Canadian Pacific Railway Company for the right to construct said branch lines will come before the Board of Railway Commissioners for Canada at a sitting to be held at Fort William on the 7th September prox.

2nd. The extent of river frontage granted, or to be granted, to the Grand Trunk Pacific Railway in Fort William harbour.

In consideration of the present and assured situation at Fort William, and in view of the very general desire, as expressed in all the evidence presented to the commission, that the port should be nationalized and controlled by the Dominion government, or a National Board of Commissioners to be appointed by the government, your commission would recommend that, until its final report on the subject is submitted to your Excellency in Council for consideration, no portion of the frontage on the Kaministiquia and Mission rivers, applied for by the Grand Trunk Pacific Railway Company, should be handed over to that company to a further extent than is reasonably necessary for present requirements of the company.

3rd. The advisability of the withholding, from sale or lease, of lands still held by the Crown, at ports on Lake Superior, Georgian bay and Lake Huron.

Your commission further recommends that there be no further alienation of any lands owned or controlled by the Crown which are adjacent to the harbour of Port Arthur or to any other harbour of Lake Superior, Georgian bay or Lake Huron until the final report of your commission upon such harbours has received full consideration by your Excellency in Council.

On behalf of your commissioners,

We have the honour to be, sir,

Your obedient servants,

ROBERT REFORD, Chairman,
J. H. ASHDOWN, Commissioner.

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Department of Public Works of Canada.

REPORTS

OF THE

International Waterways Commission

Canadian Section and
American Section

1905.

INTERNATIONAL WATERWAYS COMMISSION,

Office of Canadian Section.

Ottawa, December 24, 1905.

Sir,—The Canadian Section of the International Waterways Commission has the honor to submit the following progress report.

The River and Harbor Act, passed by the United States Congress and approved June 13, 1902, contained the following provision, viz.:—

"The President of the United States is hereby requested to invite the "Government of Great Britain to join in the formation of an international com- "mission, to be composed of three members from the United States and three "who shall represent the interests of the Dominion of Canada, whose duty it "shall be to investigate and report upon the conditions and uses of the waters "adjacent to the boundary lines between the United States and Canada, includ- "ing all of the waters of the lakes and rivers whose natural outlet is by the River "Saint Lawrence to the Atlantic Ocean, also upon the maintenance and regula- "tion of suitable levels, and also upon the effect upon the shores of these waters "and the structures thereon, and upon the interests of navigation by reason of "the diversion of these waters from or change in their natural flow; and, further, "to report upon the necessary measures to regulate such diversion, and to make "such recommendations for improvements and regulations as shall best subserve "the interests of navigation in said waters. The said Commissioners shall report "upon the advisability of locating a dam at the outlet of Lake Erie, with a view "to determining whether such dam will benefit navigation, and if such structure "is deemed advisable, shall make recommendations to their respective govern- "ments looking to an agreement or treaty which shall provide for the con- "struction of the same, and they shall make an estimate of the probable cost "thereof. The President, in selecting the three members of said Commission "who shall represent the United States, is authorized to appoint one officer of "the Corps of Engineers of the United States Army, one civil engineer well "versed in the hydraulics of the Great Lakes, and one lawyer of experience in "questions of international and riparian law, and said Commission shall be "authorized to employ such persons as it may deem needful in the performance "of the duties hereby imposed; and for the purpose of paying the expenses "and salaries of said Commission, the Secretary of War is authorized to expend "from the amounts heretofore appropriated for the Saint Marys River at the "Falls the sum of twenty thousand dollars, or so much thereof as may be neces- "sary to pay that portion of the expenses of said Commission chargeable to the "United States."

The invitation authorized by this section was duly communicated to the Government of Great Britain by Honourable Jos. H. Choate, then American Ambassador in London, by a letter dated July 15, 1902 (copy appended, marked "A").

On December 2, 1902, the invitation was transmitted by the Colonial Office in London to Lord Minto by a despatch dated December 2, 1902 (copy appended, marked "B"), and by a subsequent letter dated December 3, 1902 (copy appended, marked "C").

The Canadian Government accepted the invitation of the United States Government under the recommendation of the Honourable the Minister of the Interior (copy appended, marked "D").

On June 6, 1903, the Canadian Government was informed by the Secretary of State for the Colonies that His Majesty's Government had accepted the suggestion of the Canadian Ministers in regard to the appointment of the Canadian Commissioners (copy of Mr. Chamberlain's letter appended, marked "E").

The American members of the Commission were appointed October 2, 1903. They were Colonel O. H. Ernst, Corps of Engineers, United States Army; Mr. George Clinton, attorney-at-law, of Buffalo, N. Y.; and Professor Gardner S. Williams, of Ithaca, N. Y.

The first appointed on the Canadian section was Dr. W. F. King, Dominion Chief Astronomer, of Ottawa, on December 3, 1903 (copy of Order-in-Council appended, marked "F"). The two other Commissioners, Mr. James Pitt Mabee, K. C., of Toronto, and Mr. Louis Coste, C. E., of Ottawa, were appointed on January 7, 1905 (copy of Order-in-Council appended, marked "G"). On February 20, 1905, Mr. Thomas Côté, of the City of Montreal, was appointed secretary of the Canadian section of the Commission. He acted as secretary of the full Commission up to the appointment by the United States Government of Mr. L. C. Sabin, as secretary of the American section, on the 1st of August, 1905. On May 20, 1905, Mr. James P. Mabee was appointed President of the Canadian section of the Commission (copy of Order-in-Council appended, marked "I").

The Canadian section held its first meetings in Ottawa, Ont., on March 6 and 7, 1905. The scope of the investigations to be undertaken was defined in a letter addressed to each Commissioner by the Honourable the Secretary of State for Canada, dated January 16, 1905 (copy appended, marked "J"), from which the following is an extract:—

"Among the subjects that may come up for consideration before this Com-
" mission are:

"1. The proposed diversion southward by the Minnesota Canal and Power
" Company of Duluth, of certain waters in the State of Minnesota that now flow
" north into the Rainy River and the Lake of the Woods.

"2. The diversion about a mile and a half east of the town of Sault Ste.
" Marie of part of the waters of the St. Marys River into the Hay channel entirely
" through American territory. The river St. Marys now forms part of the
" boundary between the United States and Canada, and the waters of the river
" are clearly international. The Canadian vessels of necessity are using the Hay
" channel, but no treaty has been made concerning their right.

"3. Enquiry into the effect of the levels of Lakes Huron and Erie by the
" construction of the Chicago Drainage Canal.

"4. The building of a dam and other obstructions on the St. John River
" flowing through the State of Maine into New Brunswick, contrary to the
" express stipulation of the Ashburton Treaty."

The American section held its first meeting in Washington, D. C., on May 10, 1905, and organized by the election of Colonel Ernst as chairman. The scope of the investigations to be undertaken was defined in a letter from the Department of State, dated April 15, 1905 (copy appended, marked "K"), from which the following is an extract:—

"The wording of the law will be seen by reference to the enclosed copy.
" The Department's opinion is that the words 'including all of the waters of the
" lakes and rivers whose natural outlet is by the River St. Lawrence to the
" Atlantic Ocean' are intended as a limitation on what precedes them, and that
" the investigation and report should cover only such waters, omitting the lower
" St. Lawrence itself, as well as all other waters not discharging naturally
" through it.

" The broader interpretation given to the Act by the Canadian authorities
" should be rejected, if for no other reason, on account of the smallness of the

" appropriation for the support of the American section. Congress could hardly " have intended to provide, with a sum of $20,000, for the expenses incident to " an investigation extending to the Pacific coast, and possibly embracing the " Alaskan boundary as well."

Previous to the first meeting of the American section, it was learned that the United States Government had placed upon the Act of Congress, authorizing the appointment of the Commission, a construction limiting considerably the scope of the investigations to be undertaken.

By a despatch dated February 3, 1905 (copy appended, marked "L"), the Canadian Government, through diplomatic channels, made representations to Washington in regard to the erection of further piers in the St. John River. On February 24th the United States Secretary of State informed the Canadian Government, through His Majesty's Ambassador in Washington, Sir H. M. Durand (copy of Sir H. M. Durand's despatch and copy of Mr. John Hay's letter appended, marked "M" and "N", respectively), that the Commission was debarred from investigating the case of the St. John River and making a report thereon.

On March 25, 1905, the Canadian Government made further representations to the United States Government (copy of Order-in-Council appended, marked "O"), from which the following is an extract:—

"The Minister further observes that throughout the correspondence which " has taken place prior to the appointment of the Canadian section of the Com- " mission, the terms used have always been identical to those of the Act above " referred to (the River and Harbor Act approved June 13, 1902), and that it " has always been understood that the investigation would bear upon the con- " ditions and uses of the waters adjacent to the boundary line between Canada " and the United States, the other waters belonging to the lakes and rivers " whose natural outlet is by the River St. Lawrence to the Atlantic Ocean being " stated to be also included therein, but the general scope of the Commission " being especially intended to apply to all waters adjacent to the boundary line " between Canada and the United States.

"The Minister, therefore, is of the opinion that in the despatch under his " consideration an unintentional misapprehension has existed as regards the " terms of the Act of Congress, and that it is fit and proper that the work of the " Commission be not restricted to narrower limits than those indicated by the " said Act.

"The Minister, therefore, recommends that the necessary representations " be made in order that the investigation to be carried on by the said Commission, " and the report to be based thereon shall extend to all the waters adjacent to " the boundary line between Canada and the United States, and, therefore, " include such portions of the St. John River as will come within the limit " assigned by the Act of Congress to the work of the Commission."

In the meantime, the American section at its meeting, held on May 10, had decided to invite the Canadian members to join in the first full meeting of the Commission in Washington, D. C., to be held May 25th, and an invitation was issued accordingly by the Department of State at the request of the Secretary of War. On May 25th the full Commission held its first meeting in Washington and organized by the election of Colonel Ernst as chairman of that meeting, it being agreed that at meetings of the full Commission held on American territory, the chairman of the American section should preside, and at meetings held on Canadian territory, the chairman of the Canadian section should preside. The Canadian members paid a visit of courtesy to President Roosevelt, where the scope of the investigations was informally discussed. The full Commission also proceeded in a body to call upon the Secretary of State.

The Commission remained in session during the 25th and the following day, discussing the organization, permanent places of meeting, and scope of their

duties. It was decided that for the present the offices of the Canadian section should be established in Toronto and those of the American section in Buffalo, and that full meetings should be held in one or the other city, as should be found most convenient. Subsequently, though, the Canadian section decided to establish its permanent quarters in the City of Ottawa, not having been able to find in Toronto, at any reasonable price, suitable offices.

The American section having presented the instructions under which they were acting, quoted above, the President of the Canadian section, Mr. J. P. Mabee, presented the following memorandum:—

"The Canadian members of the International Waterways Commission had " understood the scope of the Commission to be wider than the American mem- " bers regard it, and that misunderstanding may be avoided, desire briefly to " state the position they have understood matters to be in.

"The invitation of His Majesty's Government, through the American " Ambassador in London, was 'for the appointment of an international com- " 'mission, to be composed of three members from the United States and three " 'who shall represent the Dominion of Canada, whose duty it shall be to investi- " 'gate in general the waters adjacent to the boundary line between the United " 'States and Canada, the effect upon the shores produced by changes in the " 'water levels, and the erection and location of a dam at the outlet of Lake " 'Erie.'

"In due course by a report of the Committee of the Privy Council of Canada, " approved by the Governor-General of Canada, it was resolved 'that His " 'Majesty's Government accept the invitation to co-operate in the formation " 'of the Commission,' this report, after further reciting that as the subjects to " be dealt with pertained to 'the regulations of the waters adjacent to the inter- " 'national boundary,' the matter in so far as Canada was concerned should be " under the Department of the Interior and the Department of Public Works.

"Some regrettable but unavoidable delay in completing the Canadian " section of the Commission arose by the long-continued illness of the Honourable " the Minister of Public Works for Canada.

" In the despatch to the Government of Great Britain, naming the American " Commissioners, the invitation to His Majesty's Government is again recited " as being one to form an 'international commission to investigate and report " 'upon the conditions and uses of the waters adjacent to the boundary lines " 'between the United States and Canada.'

"After the appointment of the Canadian Commissioners, the Prime Minister " of Canada, Sir Wilfrid Laurier, in communicating the matter to the Canadian " House of Commons in January last, dealt with the subject-matter of the " Commission as covering all waters adjacent to the boundaries of the two " countries, and in the course of his speech made the following statements: 'In " 'sections of the country where the boundary is not water, but land, there are " 'streams and large rivers which have their sources in one country and which " 'flow into another. Complaint has been made by the United States that " 'Canadians have constructed some works upon rivers which have their sources " 'in Canada and which flow into the United States, and that these works affect " 'the flow of the waters in their country. We also have made complaints to " 'the United States that Americans have constructed upon some rivers, the " 'St. John River, for instance, works which affect the flow of the waters in our " 'country. It is, therefore, to the mutual interest and advantage of both " 'countries to have this question properly investigated with the view of having " 'concurrent legislation if such should be found necessary. From olden times " 'it has been a principle of Roman law, which has been adopted by most civilized " 'nations, that the riparian owner of any stream has the right to use the water " 'of that stream for his own benefit, provided he does not impair the flow of " 'the water beyond the boundary of his property. This is a principle of law

" 'which dominates in almost every country; but it is not possible to have this
" 'principle followed and carried out when the works are in one country and the
" 'boundary of the property is in another country. For these reasons we have
" 'thought it advisable to respond to the invitation of the United States to have
" 'this question investigated. We have agreed to a commission, to be composed
" 'of six members, three to represent the Government of the United States and
" 'three to represent the Government of Canada.'

" If the inquiries of the Commission are to be limited to the waters of the
" Great Lakes only, it would seem that the Government of Canada has been
" under a misapprehension as to the desires and intentions of the Government
" of the United States, and we regard it as our duty to report to our Government
" the limitations expected to be placed upon the scope of the Commission, and
" we respectfully suggest that further action should be delayed until we may be
" advised of the views of the Government of Canada upon the premises."

This was concurred in by the two other Commissioners, Dr. W. F. King and Mr. Louis Coste.

The chairman of the American section stated that he was informed that the British Government had communicated with the American Government, through diplomatic channels, requesting that a broader interpretation be given to the Act of Congress providing for the Commission, and that the American Government then had the matter under consideration, but that no decision could be taken before the return to Washington of the United States Secretary of War, at the time absent in the State of Ohio. It was then decided that further proceedings be deferred until further instructions be received from the two Governments. It was agreed that the decision of the American Government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favorable to the Canadian interpretation of the law, or if it be unfavorable and be accepted by the Canadian Government, then a meeting of the Commission should be called on Canadian territory by the chairman of the Canadian section at as early a date as practicable. The result of this meeting was communicated to His Majesty's Ambassador at Washington by the secretary of the Canadian section, and Sir H. M. Durand and Mr. H. O'Beirne, the British charge d'affaires, had interviews with Secretary of War Taft and Acting Secretary of State F. B. Loomis, urging the contention of the Canadian Government as set forth in the Order-in-Council of March 25, 1905, above quoted and appended, marked "O".

The United States Government persisted in its interpretation of the Act of Congress and His Majesty's Ambassador in Washington was so informed by the Acting Secretary of State, F. B. Loomis, in a letter dated May 31, 1905 (copy appended, marked "P").

On June 2nd, the Acting Minister of Public Works, Honourable W. S. Fielding, was informed by the secretary of the Canadian section of what had happened in Washington (copy of the memorandum appended, marked "Q").

On June 5, 1905, the following instructions were given to the Canadian section by the Right Honourable Sir Wilfrid Laurier:—

PRIME MINISTER'S OFFICE, CANADA.

"OTTAWA, June 5, 1905.

"DEAR SIR,—With reference to the objection raised by the American Com-
" missioners to consider any other waters than the waters of the lakes and rivers
" whose natural outlet is by the River St. Lawrence to the Atlantic Ocean, it
" would be of no use to persist in our contention, and the Government, therefore,
" are of opinion that the Commissioners had better proceed even in this limited
" way.

"At the same time, the Canadian Commissioners would do well to call the " attention of the Commission to the condition of things which exists on the " River St. John, and the necessity of prompt joint action thereon.

"Yours very sincerely,
"WILFRID LAURIER.

"THOMAS COTE, ESQ.,
"*Secretary, Canadian Section,*
"International Waterways Commission,
"Ottawa."

In the meantime, the decision of the United States Government had been communicated to the President of the Canadian section by a letter dated June 2, 1905 (copy appended, marked "R"). The chairman of the Canadian section communicated to the chairman of the American section the decision of the Canadian Government, authorizing the Canadian members to proceed with the work of the Commission within the field prescribed to the American members (see letter copy appended, marked "S").

The Canadian section then proceeded to complete its organization. Through the courtesy of the Honourable the Minister of Public Works, temporary quarters in the Seybold building, in Ottawa, were assigned to its use, and later on, excellent quarters were procured in the Corry building. The American section, on the other hand, proceeded also to complete its organization, establishing its quarters in the Federal building in Buffalo. Mr. L. C. Sabin, the secretary of that section, took charge of the office on September 11, 1905.

The full Commission held its second meeting at Toronto, June 14 and 15, 1905. It was learned then that Professor Williams had tendered his resignation as member of the Commission, and had been replaced by Mr. George Y. Wisner, C. E., of Detroit, appointed June 8, 1905. Among the questions brought to the attention of the Commission at this meeting were the following, viz.:—

"A. The uses of the waters at Sault Ste. Marie for power purposes, and the " regulations necessary to insure an equitable division of the waters between the " two countries and the protection of the navigation interests.

"B. The uses of the waters of the Niagara River for power purposes, and " the regulations necessary to insure an equitable division of the waters between " the two countries and the protection of Niagara Falls as a scenic spectacle.

"C. The alleged differences in the marine regulations of the two countries " with respect to signal lights, and the advisability of adopting uniform signals " for both countries.

"D. The advisability of building controlling works at the outlet of Lake " Erie, including the effect upon the levels of the lakes and upon their shores, " and upon the River St. Lawrence.

"E. The diversion southward by the Minnesota Canal and Power Company, " of Duluth, of certain waters in the State of Minnesota that now flow north into " the Rainy River and the Lake of the Woods.

"F. The effect of the Chicago Drainage Canal upon the levels of Lakes " Michigan, Huron, Erie and Ontario, and upon the River St. Lawrence.

"G. Delimiting the international boundary on the international waterways " and delineating the same on modern charts.

"H. The suppression or abatement of illegal fishing on the Great Lakes.

"I. The location and construction of common channels.

"J. Regulations to govern navigation in narrow channels.

"K. Protection of shores from damage due to deepening of channels and " increased speed.

"L. The transmission of electric energy generated in Canada, to the United " States, and vice versa."

The questions more specially dealt with at the meetings of the Commission, on June 14th and 15th in Toronto, were the construction of regulating works at the outlet of Lake Erie, and their probable effect on Lake Ontario and on the River St. Lawrence; the uses of the waters of Niagara River for power purposes, and the preservation of the Falls; and the proposed works of the Minnesota Canal and Power Company, which were referred to the Committee on Jurisdiction, composed of the attorneys of the two sections, and also to the Engineering Committee, composed of Mr. George Y. Wisner and Mr. Louis Coste.

In view of permitting the Commission to make its existence known to the persons most interested in the international waterways, so as to receive suggestions from them, and to visit in person some or all of the principal localities concerned, it was decided to give public hearings where such hearings were desired by the local business interests.

On July 7th, the Commission in a body paid a visit of courtesy to the Canadian Government, at Ottawa, and were the recipients of many delicate attentions from the authorities. Between the 9th and 13th of July, the Commission passed over the St. Lawrence River and the Canadian Canals from Quebec to Kingston, using the Government steamer "Frontenac," kindly placed at their disposal by the Honourable the Minister of Marine and Fisheries. Public hearings were held at Montreal July 11, at Kingston July 13, at Niagara Falls September 14, at Toronto September 15, at Hamilton September 16, and at Buffalo November 10. At the first hearing in Montreal, strong objections were presented by the commercial and shipping interests against the proposed construction of controlling works at the outlet of Lake Erie, in fear that such works would be detrimental to the navigation of the St. Lawrence River, and more especially of the St. Lawrence ship channel from Montreal to Quebec. It was then emphatically stated by the American members of the Commission that no plan had yet been prepared for the proposed works, and if said works were to cause injury to the River St. Lawrence, the proposition would be entirely and absolutely rejected.

The same expression of opinion was given at the public hearings held in Kingston, Toronto, Hamilton and Niagara Falls.

During the month of August a majority of the members of the Commission visited the Detroit River, the St. Clair River, Lakes St. Clair and Huron; St. Marys River, Sault Ste. Marie; Lake Superior; Port Arthur, Fort William and their surroundings; Duluth, Minneapolis, St. Paul, Chicago and Detroit. The report of the sub-Committee who made this investigating trip is appended, marked "Z".

Meetings of the full Commission were also held at Buffalo on September 11, 12 and 13, October 27 and 28, and November 10 and 11. To enable all interested persons to appear before the Commission, or to address it, it was arranged that public notice of all meetings would be given as long in advance as possible through the press of the principal cities on both sides of the Great Lakes and the St. Lawrence River.

SAULT STE. MARIE.

Of all the questions brought to the attention of the Commission the most pressing one for consideration was that relating to the uses of water at the Sault Ste. Marie. The situation there, in brief, as described in the progress report of the American section of the Commission to the United States Secretary of War is this:—

"The volume of water flowing out of Lake Superior is, at normal low water " —elevation 601—about 64,000 cubic feet per second. Lower stages and a " lower discharge have sometimes occurred. On either side of the rapids is a

" navigation canal, constructed by the United States and Canadian Governments, respectively.

"The traffic through these canals has reached enormous proportions and is " increasing. It is larger this year than ever before, and will greatly exceed " 40,000,000 tons for the year. The quantity of water consumed in the operation " is about 1,200 cubic feet per second. The quantity required in the future will " be greater. Not less than 4,000 cubic feet should be unconditionally reserved " for canal uses, and in granting power privileges, the respective Governments " should not forfeit the right to increase the amount indefinitely. It may be " remarked in passing that raft navigation over the rapids has so greatly diminished, and is now so small in amount, that the quantities of water above mentioned will suffice to provide for it. This leaves about 60,000 cubic feet which " may be temporarily used for power purposes.

"On the Canadian side the Lake Superior Power Company has a power " canal in operation, which has a capacity of about 9,000, and is using about " 7,000 cubic feet per second. This Company has designed an additional canal, " not yet constructed, which will have a capacity of about 23,000 cubic feet " per second. On the American side the Michigan Lake Superior Power Company has in operation a power canal, which has a capacity of about 31,000, " and is using about 3,500 cubic feet per second. This canal takes the water " from the St. Marys River above the rapids, conducts it through the City of " Sault Ste. Marie, and empties it about a mile below the rapids. On the " American side also the Chandler-Dunbar Company, owning a portion of the " shore line adjoining the rapids, have in operation power works using about " 1,400 cubic feet per second. This Company is engaged in altering and improving its works in the bed of the stream, under revocable permits from the " Department.

"Under permits thus far granted, the consumption of water will be increased " to about 3,000 cubic feet per second, but in March, 1902, the Company applied " for a permit to build a dike downstream from the fourth pier, counting from " the American side of the International Bridge in a direction nearly parallel " with the shore, to connect with a power house extending out an equal distance " into the stream. A rival company, the St. Marys Power Company, applied " in March, 1903, for permission to construct a power canal by means of two " parallel dikes extending downstream and a short distance upstream, from the " third and fifth piers of the bridge, with corresponding power house. Neither " of these latter requests were granted, but they show what the intentions of " the Companies are, if they be permitted to carry them out. Evidently there " is not enough water to carry out all of these schemes. An understanding " must be reached by which there shall be an equitable division of the surplus " water between the two sides of the boundary. The division between rival " companies, fortunately for this Commission, may be left to the courts of law.

The figures above quoted for the Chandler-Dunbar Power Company represent 700 cubic feet per second being actually used, and 700 cubic feet per second being wasted.

The application to the War Department of the United States from the American companies for further privileges, and from the Lake Superior Power Company to the Canadian Government for additional authority, led the Commission at its session of October 28 to pass the following resolution, of which copies were sent to the Secretary of War of the United States and the Minister of Public Works for Canada, viz.:—

"RESOLVED—That in the opinion of this Commission, no further rights " or privileges should be granted or conferred regarding the uses or diversions " of the water flowing out of Lake Superior, by either the Government of the " United States or Canada, until all data and information are in the hands of the " Commission that may be necessary to enable it to make suggestions for regu-

" lating the excess of these waters, or that, if such rights or privileges be granted, " they be subject to any regulation that may be adopted by both Governments."

This resolution was transmitted to the Lieutenant-Governor of Ontario by the Secretary of State for Canada, upon a report of the Privy Council (copy appended, marked "T").

The use of water in St. Marys River for power purposes must be so regulated as not to affect injuriously the level of Lake Superior. The level must never be allowed to fall so low as to injure navigation, and it must never be raised so high as to submerge the shores.

The Act of Congress, approved on June 13, 1902, authorized the Michigan Lake Superior Power Company to divert water from St. Marys River, above the rapids, with certain conditions, which are described as follows in the Act, viz.:—

"Subject to the express precedent conditions hereinafter mentioned, the " Michigan Lake Superior Power Company, of Sault Ste. Marie, Michigan, its " successors and assigns, after first obtaining consent of the Secretary of War " and the Chief of Engineers and their approval of the said canal and remedial " works proposed, is hereby authorized to divert water from the Saint Marys " River into its water-power canal, now being constructed at Sault Ste. Marie, " Michigan, for water-power purposes while and so long as such works and diver- " sion of water from said river shall not injuriously affect navigation therein, " nor impair or diminish the water levels or any natural increase thereof either " in Lake Superior or in the United States ship canal and locks or the navigable " channels, locks or ship canals connected therewith, whether natural or artificial, " now existing or which may hereafter be established or created by the United " States for navigation purposes. And conditioned further, that said Company " shall establish, maintain and operate suitable and sufficient remedial and " controlling works in the rapids of said river, to the approval of the Secretary " of War and the Chief of Engineers; and said Company shall maintain and " operate said canal and works in accordance with any rules and regulations " that may hereafter be recommended by any International Commission and " that shall become operative. Whenever, in the judgment of the Secretary of " War, the operation of said canal and remedial and controlling works, or either " of them, either in themselves or in conjunction with any other canal or canals " in the United States or Canada which now or hereafter may exist, is injuriously " affecting water levels or the navigation of Lake Superior, the River Saint " Marys or other channels, locks or ship canals connected therewith as herein- " before provided, he shall impose upon said Company such rules and regulations " for the operation of said canal and remedial works, as may, in his opinion, be " necessary to prevent such injury. It shall become his duty, and he shall have " the authority to enter upon the property of said Company and to close said " canal in whole or in part to the extent necessary to maintain water levels and " to require said Company, at its own expense, to remove, add to or modify said " works or any part thereof to the extent necessary to maintain water levels. " Neither the Secretary of War nor the Chief of Engineers or any officer or other " person acting under direction of them or either of them, shall be in any way " liable by reason of anything done in the execution of this provision.

"All remedies herein provided, however, shall be cumulative, and shall be " without prejudice to any other remedies, either of the United States or of " individuals, for failure of said Company to maintain said levels for navigation " purposes as herein provided.

"Nothing herein contained shall be held to affect any existing riparian or " other rights of any person or corporation, or the existing remedies therefor, or " any action at law or equity now pending. The right is hereby expressly " reserved to Congress to alter, amend or repeal the provisions contained in this " paragraph."

The United States War Department entered into an agreement with the

Michigan Lake Superior Power Company (copy of which is appended, marked "U"), and imposed upon the Company certain rules and regulations to govern the maintenance of the level of Lake Superior. In the legislation above quoted and in the agreement referred to, the principle was recognized that the use of the water of St. Marys River for power purposes was not granted in any fixed quantity nor for any fixed length of time. It was further recognized that the Secretary of War could enter upon the property and close the canal of the Company, in whole or in part, at any time to the extent necessary to maintain the level of St. Marys River above the rapids. The Act further stated that the use of the water of St. Marys River should finally be regulated by an international commission. The rules and regulations imposed upon the Michigan Lake Superior Power Company by the Secretary of War on December 2, 1902, are still in force, and will probably be used by the International Waterways Commission as a foundation in framing the regulations to be ultimately recommended to the Government of Canada and to the Government of the United States. The fundamental principles on which these rules and regulations are based are:—

1. Levels must be maintained.
2. Navigation must be protected.
3. The public must reserve the right to use any portion or all of the natural flow in the future.

A public hearing, at which the parties interested in the condition of affairs at Sault Ste. Marie were given an opportunity to be heard, was held in Buffalo on November 10. The Lake Carriers' Association appeared before the Commission and made a strong plea in favor of reserving the land north of the Poe lock for the construction of an additional ship canal and locks.

The Commission, at its session of November 11, practically adopted certain rules and regulations to govern the use of the water at St. Mary's River and the maintenance of the level of that river above the rapids, and it is hoped that said rules and regulations can be forwarded to the United States Secretary of War, and to the Minister of Public Works of Canada, for approval at an early date. The enforcement of these rules and regulations calls for executive action from time to time, and in this regard the American section of the Commission, in its progress report to the Secretary of War, suggested that said executive action be vested in an international commission. Here follows the suggestion of the American section:—

"The enforcement of these rules and regulations calls for the executive " action from time to time of an international commission. The enforcement " of rules to be established hereafter at other places or upon other subjects will " probably likewise require joint executive action. It is not clear from the " language of the law creating this Commission that Congress intended to provide " for a permanent international board. It is desirable that the status of the " present Commission as a permanent executive board be defined, or a new board " created."

The questions brought to the attention of the Commission enumerated above cover a wide range of subjects. Some of them clearly come under the jurisdiction of the Commission as constituted and as limited in its scope by the United States Government. Some do not, if the opinion of the United States Attorney-General is to prevail, come under the jurisdiction of the Commission, whilst about others there is room for doubt. The American section, in the progress report made to the United States War Department (copy appended, marked "A 1"), has suggested that the jurisdiction of the Commission be more clearly defined.

The United States Secretary of War, in his annual report to President Roosevelt, dated December 9, 1905, has approved the suggestions of the American section in this regard. Here is what he states at pages 51 and 52 of said report:—

"The full Commission has held numerous meetings and public hearings, in

" both the United States and Canada, and has collected a large amount of data " bearing upon the various questions which have been brought to its attention. " A progress report, showing the work that has been accomplished, is attached " hereto, marked Appendix F, and attention is invited to this report for a full " and detailed statement of the labors of the Commission.

"It has been hampered in its work by a lack of clear understanding as to " its permanency and as to the eventual scope of its duties. For example, in " making regulations for the uses of the surplus waters at the Sault Ste. Marie " for power purposes, it seems necessary to provide for joint continuous super- " vision. The enforcement of rules to be established hereafter at other places " or upon other subjects will probably likewise require joint executive action. " It is not clear from the language of the law creating the Commission that " Congress intended to provide for a permanent international board. It is " desirable that the status of the present Commission as a permanent executive " board be defined or a new board created.

"The questions which have been brought to the notice of the Commission " by various persons or interests thus far cover a wide range of subjects. Some " of these questions clearly come under the jurisdiction of the Commission as " constituted, while some clearly do not, and about others there is room for " doubt. The Canadian members of the Commission are ready and anxious to " consider all of these questions and to extend the jurisdiction of the Commission " to all international waters between the Atlantic and the Pacific Oceans. It is " desirable that the wishes of Congress in this matter be more defined."

Since the Commission completed its organization, it has made good progress in the collection of data bearing upon some of the questions brought before them, particularly upon those relating to the uses of the waters of the Niagara River for power purposes: the regulation of the level of Lake Erie by works near its outlet, and the proposed works of the Minnesota Canal and Power Company.

NIAGARA FALLS.

With reference to the uses of the waters at Niagara Falls, although the Commission was not ready to report, it thought proper to pass, at its session of October 28, the following resolution, of which copies were sent to the Secretary of War of the United States and to the Minister of Public Works of Canada, viz.:—

"RESOLVED—That this Commission recommend to the Government of " the United States and Canada that such steps, as they may regard as necessary, " be taken to prevent any corporate rights and franchises being granted or " renewed by either Federal, States or Provincial authority for the uses of the " waters of the Niagara River for power or other purposes until this Commission " is able to collect information necessary to enable it to report fully upon the " 'condition and uses' of those waters to the respective Governments of the " United States and Canada."

This resolution was transmitted by the Secretary of State for Canada to His Honour the Lieutenant-Governor of Ontario, and by the United States Secretary of War to the Governor of the State of New York.

The Canadian section requested Monseignor J. C. K. Leflamme, the eminent Professor of Geology at Laval University, Quebec, to make a special report on the geological condition of the bed of the river in the vicinity of the Falls. His report is appended, marked "V".

The situation at Niagara in brief is this:—

The following quantities of water are required for chartered developments in operation or in course of construction on both sides of the river:—

On the Canadian Side—

The Ontario Power Company	12,000	cubic feet per second.
The Electrical Development Company	10,600	" " " "
The Canadian Niagara Power Company	9,500	" " " "
Total	32,100	

On the American Side—

The American Niagara Falls Power Company	17,200	cubic feet per second.
The Niagara Falls Hydraulic Power and Manufacturing Company	9,200	" " " "
Total	26,400	

Total on both sides, 58,500 cubic feet per second.

It is estimated that the total flow over the two Falls is 222,400 cubic feet per second. There remains to be determined to what extent the use of 58,500 cubic feet per second for power purposes by the present companies, on both sides of the river, will affect the American Fall. A competent hydraulic engineer, at the request of Dr. Clarke, the geologist of the State of New York, has calculated that the subtraction of 40,000 cubic feet per second from the Niagara River above Goat Island will draw the water down to the rock bottom edge of the American Fall, leaving a miserable little film dribbling over the sill; and that the subtraction of 40,000 cubic feet more, or 80,000 cubic feet per second in all above Goat Island, will dry up the American channel completely, while the Canadian channel will still be an object of interest. Does this necessarily mean that the using of more water on the Canadian side, assuming that said water is taken below the crest of the rapids, will also affect the American Fall? This is a point to be determined.

According to the Niagara Falls Electrical hand book, the height of the Canadian Fall, over which flows about seven-eighths of the entire volume of water, is 159 feet. The height of the American Fall is 165 feet, or about six feet greater than that of the Horseshoe Fall, the difference in the level being caused by the greater declivity in the bed of the river in the Canadian channel.

The official geologist of the State of New York states that the height of the American Fall is by ten feet greater than the Horseshoe Fall. Other engineers and experts have put the difference to from twelve to fourteen feet. This point should also be determined.

The slope of the Niagara River towards the Horseshoe Fall is such that the level in the vicinity of the intakes of the power plants on the American side is considerably higher than the Horseshoe Fall, towards which the water flows down as in a steep recipient. The American Fall is barred off on this channel by a reef near the head of Goat Island. The form of the Niagara River is such, however, that it spills over the side of the draw leaving to the Horseshoe Fall and branches the water which flows over the American Fall. It is clear that the drawing of water from the American side must have a greater effect upon the lower end of the American Fall than drawing it on the Canadian side, two of the Canadian intakes being below the crest of the rapids. The data are lacking regarding the speed of this descent, hence it is not possible to estimate with any accuracy what are the relative amounts of water which can be drawn from the two sides of the river without affecting the American Fall. *En resume*, we have no absolute data to govern us at the present time.

Besides the chartered developments referred to above, there are in existence two charters granted by the New York Legislature to corporations organized to take unlimited water from Niagara River.

The Dominion Parliament has also granted charters to three corporations which are still in force and organized for the purpose of diverting water from

the Welland River or from the Niagara River by back flow, and from Grand River and Lake Erie.

None of these Companies on either side of the river have actually commenced the construction of their works.

At Chicago, citizens of the United States have built a drainage canal, which, when fully completed, will use 10,000 cubic feet of water per second. This drainage canal will have the effect of lowering Lake Michigan by over six inches, and Lake Erie by nearly four inches. It will, beyond a doubt, materially affect the flow of the Niagara River over the Falls.

On the Canadian side there is also the Welland Canal and The Hamilton Ca aract Power Company who take their water from the Welland Canal, using the escarpment at De Cew's Falls and representing a total diversion of 2,400 cubic feet per second.

There is also the Niagara Falls Park River Railway Co., who are using 1,500 cubic feet of water per second.

On the American side another diversion of 1,500 cubic feet per second is made by way of the Erie Canal.

Therefore the total diversions of water by works in operation or under actual construction on the American side represent 37,900 cubic feet per second, and on the Canadian side, the total quantity of water which will be ultimately diverted by works actually in operation or in way of construction represent 36,000 cubic feet per second.

President Roosevelt, in his message to Congress on December 5, 1905, stated as follows:—

"In my judgment, the Grand Canyon of the Colorado should be made into " a national park. It is greatly to be wished that the State of New York should " copy, as regards Niagara, what the State of California has done as regards " the Yosemite. Nothing should be allowed to interfere with the preservation " of Niagara Falls in all their beauty and majesty. If the State cannot see to " this, then it is earnestly to be wished that she should be willing to turn it " over to the National Government, which should in such case (if possible, in " conjunction with the Canadian Government) assume the burden and responsi- " bility of preserving unharmed Niagara Falls; just as it should gladly assume " a similar burden and responsibility for the Yosemite National Park, and as it " has already assumed them for the Yellowstone National Park. Adequate " provision should be made by Congress for the proper care and supervision of " all these national parks."

Your Commission are desirous of obtaining the views of the Government as to preserving the scenic beauty of Niagara Falls.

No doubt the Government of the Province of Ontario will be ready to co-operate with the Dominion Government in this regard. An agreement will have to be arranged whereby the quantity of water diverted for power or other purposes shall be limited, and there will have to be an arrangement for equitable division of such waters. The demand for use of power for commercial purposes will increase every year, and it will require a very strong stand to prevent the despoiling of this one of Nature's greatest wonders.

The Federal Government has, in the opinion of this Commission, control of the deportation of power to the United States. Unfortunately, a very large portion of the power generated on our side of the River at Niagara will, unless some more effectual restrictions are placed upon its removal, soon be permanently diverted to the building up of American factories and the running of American railways. Within a few years our own railways will be clamoring for this power. Vested rights already interfere with action in this regard, and the more power that is now allowed to be diverted the greater will be the evil and the harder to rectify.

It is quite evident, in the view of the Commission, that the jurisdiction to deal with international waters must be vested in the Federal Government of each country. Changed conditions and the greatly increased demand for power, owing to electrical developments, have rendered it absolutely essential that there should be one authoritive body controlling the diversion of such waters. The interests of navigation must be paramount, and the Federal Government alone must ultimately decide what those interests are. The maintenance of Niagara is a national matter and should be dealt with on national lines.

The whole question of riparian rights in relation to navigable streams or international waters will most likely have to be adjusted by some treaty arrangement between the two countries, and instructions will have to be given to some Commission to report upon some scheme of settlement upon broad lines.

It is desirable to have settled, by the highest authority, as soon as possible, whether the water in navigable international streams is in any sense the property of the Provinces or States bounding on the same, or whether whatever property rights exist in such streams are vested in the Federal Government. If it should be held that the Provincial and State authorities have proprietary rights in such waters, then your Commission are of the opinion that some arrangements should be made with the Provinces by which such rights should be acquired, so that the use of the same may be the subject of a reasonable treaty of mutual benefit with our neighbors.

RAINY RIVER.

The proposed works of the Minnesota Canal and Power Company are of vast importance to the Rainy River District. They may be described as follows:—

At the height of land in St. Louis and Lake counties in Northern Minnesota, the waters from Birch Lake and White Iron Lake, and the streams running out thereof, and the immense watershed thereof, run northward and ultimately into Rainy Lake, and from there into Rainy River, passing into the Lake of the Woods. The water from this source forms by computation seven per cent. of the water passing out of Rainy Lake over Alberton Falls at Koochiching. The water system of Rainy River and Lake of the Woods have long been established as a commercial highway. From the Canadian ports of Rat Portage and Fort Francis, two large and well equipped passenger and freight lines ply daily during the season of navigation, forming the means of water communication between the Canadian ports of Rat Portage, Rainy River town, Boucherville, Burwick, Emo, Big Forks, Little Forks, Isherwood, Fort Francis, Bears Pass, Seine River and Mine Centre, and forming along a considerable part of such route the only vehicle of passenger and freight communication.

The most important section of the two hundred miles of navigation is the Rainy River, flowing through what is rapidly becoming a thickly populated and prosperous valley for some eighty odd miles, with towns rapidly building up at close intervals on its banks dependent almost wholly on the river route for their mercantile and manufacturing interests. The fine class of steamboats plying on this water is already in certain portions of the summer hampered by low water on the rapids and shoals of the river, and the proprietors of the regular steamboat lines have been earnestly petitioning for such improvement being made on the river as would remove such disability, a disability that compels the withdrawal for considerable intervals during each summer of some of the large and deeper draught steamboats. In view of the fact that navigation is already suffering for lack of adequate water in portions of Rainy River and in portions of Rainy Lake, the population of that district has learned with surprise and alarm that active steps had been taken by the Minnesota Canal and Power Company, of Duluth, Minn., to obtain the authorization of

the Federal Government of the United States, through the Commissioner of the General Land Office at Washington, to construct a dam or dams and a canal to divert all the waters of the Birch Lake and White Iron Lake watershed, hereinbefore referred to, into the Embarrass River, and by it into Lake Superior at Duluth, thus diverting from this long established international waterway of Rainy Lake and Rainy River a large proportion of its tributary waters. It is claimed that, if permission be given by the Federal Government of the United States to the project of the Minnesota Canal and Power Company, a disastrous injustice will be done to Canadian and American established navigation companies that are now using the water highway of Rainy Lake and Rainy River, and to the manufacturing towns along the river, both on the Canadian and United States sides.

It is claimed that the waters of Birch Lake and Birch River and White Iron Lake help to form the chain of lakes and rivers along the boundary which are referred to in the Webster-Ashburton Treaty, and which, by the terms of that Treaty, are a public highway, free to the citizens and subjects of both countries. The scheme of the Minnesota Canal and Power Company is to take 600 cubic feet per second out of a total estimated average flow of 985 cubic feet per second. The minimum flow is estimated at 210 cubic feet per second. The quantity to be taken, 600 cubic feet per second, would be more than the natural flow during the greater part of the year.

The Corporation of the town of Fort Francis, on March 17, 1904, sent to the Minister of Marine and Fisheries of Canada, a protest against the proposed undertaking of the Minnesota Canal and Power Company. This protest has been sent by the Canadian Government to the United States Government, through the British Embassy at Washington.

On January 25, 1905, the Acting Secretary of State, F. B. Loomis, informed the Right Honourable Sir H. M. Durand, the British Ambassador in Washington (copy of his letter appended, marked "W"), that the United States Secretary of the Interior had directed the Commissioner of the General Land Office, before whom the application of the Minnesota Canal and Power Company was pending, to suspend further action in the case until advised as to the results of the inquiry which was to be made by the International Water Boundary Commission. Later on, the Attorney-General of the United States, called upon to give his opinion on the construction to be put upon the Act of Congress authorizing the appointment of the Commission, stated in reference to the case of the St. John River, New Brunswick, that the jurisdiction of the Commission was limited to the system of the Great Lakes and the St. Lawrence River. The members of the American section have since then felt reluctant in dealing with the question of the proposed works of the Minnesota Canal and Power Company, and they are awaiting further instructions from Congress in regard to this matter.

Since the Minnesota Canal and Power Company made this application to the United States Secretary of the Interior, the Rainy River Development Company and the Ontario and Minnesota Power Company have constructed extensive works at Koochiching Falls for the purpose of improving navigation in Rainy Lake and Rainy River, with the expectation of using the power which will be developed for manufacturing purposes. The Ontario and Minnesota Power Company, under a contract with the Ontario Government, has acquired the Canadian end of the Koochiching Falls, and a number of acres of shore land adjacent. They have obtained during the last session of Parliament an Act of Incorporation, being ch. 139 and entitled, "An Act respecting the Ontario and Minnesota Power Company."

By an Order-in-Council, approved by the Governor-General on September 19, 1905, the Minister of Public Works and the Government of Canada have approved the plans of the Ontario and Minnesota Power Company (copy of the approval appended, marked "X"). The engineers of the Department of Public

Works stated that in so far as the construction of the dam at Koochiching Falls is concerned, it will not in any way interfere with navigation above or below the Falls at Fort Francis, but will, in fact, be an improvement. The dangerous rapids, two miles above Fort Francis, will be flooded, thereby improving materially the navigation. The freshet waters stored in Rainy Lake could be let out during the season of low water, thereby also considerably improving navigation of the river between Fort Francis and the Lake of the Woods. The only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to be constructed by the Company, and also by a clause in the Act of Incorporation of the Company, which makes all damages to lands caused by their works a charge to be borne by them.

The proposed works of the Minnesota Canal and Power Company would interfere with the works authorized by His Excellency the Governor-in-Council. It is expected that soon after the present session of Congress, the International Waterways Commission will take up this question.

On November 21, 1905, the chairman of the Canadian section, Mr. J. P. Mabee, having been appointed one of the Justices of the High Court of Ontario, resigned, and Mr. George C. Gibbons, K. C., of London, Ont., was appointed in his place chairman of the Canadian section (copy of Order-in-Council appended, marked "Y"). Since Mr. Gibbons' appointment there have been two meetings of the Canadian section, one in Toronto and one in Ottawa, at which the work of the Commission has been fully reviewed and the various matters before the Commission discussed.

The Canadian section, in conclusion, desire to express their appreciation of the spirit of fairness shown by the members of the United States section in the discussion of all matters.

(Signed) GEO. C. GIBBONS,
Chairman of Canadian Section.

(Signed) W. F. KING,

(Signed) LOUIS COSTE,
Members of Canadian Section.

(Signed) THOMAS COTÉ,
Secretary of Canadian Section.

HONOURABLE C. S. HYMAN
Minister of Public Works
Ottawa, Ont.

APPENDIX "A".

MR. CHOATE TO THE MARQUIS OF LANSDOWNE:

AMERICAN AMBASSY,
LONDON, July 15, 1902.

MY LORD,—Under instructions from my Government, I have the honour to enclose herewith four copies of a print of the Act of Congress, approved 13th June, 1902, making appropriations for the improvement of rivers and harbours, and at the same time to draw your Lordship's attention to section 4, page 47, of the same, which provides for the appointment of an International Commission, to be composed of three members from the United States and three who shall represent the Dominion of Canada, whose duty it shall be to investigate in general the waters adjacent to the boundary line between the United States and Canada, the effect upon the shores produced by changes in the water levels, and the erection and location of a dam at the outlet of Lake Erie. In bringing the matter to the attention of Your Lordship, I am instructed to invite His Majesty's Government to take part in the formation of the Commission in question, and I should be much obliged if Your Lordship would be so good as to cause me to be informed at the earliest moment which may be practicable, whether His Majesty's Government would be disposed to accept the invitation of my Government in this connection.

I have, etc.,
JOSEPH H. CHOATE.

APPENDIX "B".

FROM COLONIAL OFFICE TO LORD MINTO:

LONDON, December 2, 1902.

Section 4 of Act of Congress of United States of America, approved 13th June this year, for improvement of rivers and harbors, provides for appointment of International Commission of six members, three from Canada, to investigate generally waters adjacent to international boundary, United States invite His Majesty's Government to co-operate in formation of Commission. What are views of your Ministers? Telegraph reply. Papers were sent to Prime Minister 30th July.

(Signed)
Secretary of State for the Colonies.

APPENDIX "C".

SECRETARY OF STATE FOR THE COLONIES TO THE EARL OF MINTO:

DOWNING STREET, December 3, 1902.

MY LORD,—I have the honour to transmit to your Excellency, to be laid before your Ministers, the accompanying copy of a note from the American

Ambassador at this Court, respecting a proposed international Commission to investigate the waters adjacent to the boundary line between the United States and Canada.

I shall be glad to receive any observations which your Ministers have to offer at an early date.

A copy of this letter was communicated to Sir W. Laurier on the 30th July last, but no answer has yet been received from him.

I have, etc.,

(Signed) ONSLOW,
For the Secretary of State.

APPENDIX "D".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by the Governor-General on April 27, 1903.

The Committee of the Privy Council have had under consideration a Colonial Office despatch, dated December 3, 1902, transmitting an abstract of Section 4, of Act of Congress of the United States, approved June 13, 1902, which provides for the appointment of an international Commission of six members, three representing the interests of Canada, and three from the United States, to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada.

The Minister of the Interior, to whom the matter was referred, submits the following recommendations: That His Majesty's Government accept the invitation to co-operate in the formation of the Commission; and that, as the subjects to be dealt with pertain to the regulations of waters adjacent to the international boundary, thereby affecting harbors and navigation, all surveys and investigations necessary to carry out the intent of the Commission, be made, as far as Canada is concerned, under the Department of the Interior and the Department of Public Works; and also, that the appointment of the three members of the Commission representing the interests of Canada be made on the recommendation of the Minister of the Interior and the Minister of Public Works.

The Committee advise that the Governor-General be moved to forward a copy of this Minute to the Right Honourable the Secretary of State for the Colonies.

All which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "E".

DOWNING STREET, June 6, 1903.

MY LORD,—I have the honour to acquaint Your Excellency for the information of your Ministers, that, in accordance with the terms of your despatch, No. 167, of the 4th May, the Secretary of State for Foreign Affairs has informed the United States charge d'affaires that His Majesty's Government accept the

invitation of the United States Government to co-operate in the formation of the Commission to investigate the waters adjacent to the boundary line between the United States and Canada.

His Majesty's Government accept the suggestion of your Ministers as to the appointment of the Commissioners, and I presume that steps will now be taken to carry their recommendations into effect and to select the three British representatives.

I have, etc.,
(Signed) J. CHAMBERLAIN.

APPENDIX "F".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by His Excellency the Governor-General, on December 3, 1903.

The Committee of the Privy Council have had under consideration a cablegram, dated October 16, 1903, from the Right Honourable the Secretary of State for the Colonies, transmitting the names of the three gentlemen appointed by the President of the United States as members of the proposed International Waterways Commission.

The Minister of the Interior, to whom the said despatch was referred, recommends that Mr. William Frederick King, Chief Astronomer of the Department of the Interior, be appointed as one of the Canadian members of such Commission.

The Committee advise that the Governor-General be moved to so inform the Right Honourable the Secretary of State for the Colonies.

All which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "G".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by His Excellency the Governor-General, January 7, 1905.

The Committee of the Privy Council have had under consideration a despatch, herewith, from the Right Honourable the Secretary of State for the Colonies, numbered 306 and dated October 28, 1904, relating to the proposed International Commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary line between the United States and Canada, and inviting the Government of Canada to take the question of the appointment of the additional Canadian representatives into early consideration.

The Minister of the Interior, to whom the said despatch was referred, states that by an Act of Congress of the United States, passed in 1902, provision was made for the appointment of three persons to investigate the conditions and uses of the waters tributary to the River St. Lawrence, these persons to be one officer of the Corps of Engineers of the United States Army, one Civil Engineer well versed in the hydraulics of the Great Lakes, and one lawyer of experience in questions of international and riparian law.

The Minister also states that provision was further made for an invitation to the Government of Great Britain to appoint an equal number of Commissioners who should represent the interests of the Dominion of Canada.

The invitation having been extended, the formal assent of the Government of Canada was given by Minute ——— of Council, dated April 27, 1904, in which it was provided that the representatives of Canada should be named by the Minister of the Interior and the Minister of Public Works.

The Minister further states that at a later date the President of the United States named his three Commissioners, and Mr. W. F. King, of the Department of the Interior was appointed by Order-in-Council on the recommendation of the Minister of the Interior.

The Committee recommend that James Mabee, Esquire, K. C., of Toronto, and Louis Coste, Esquire, Engineer, of Ottawa, be appointed Commissioners in conjunction with Mr. King on the proposed International Commission.

The Committee advise that the Governor-General be moved to forward a copy of this Minute to the Right Honourable the Secretary of State for the Colonies.

All of which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "I".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by the Governor-General on May 20, 1905.

The Committee of the Privy Council, on the recommendation of the President of the Privy Council, advise that James P. Mabee, Esquire, K. C., of Toronto, be appointed Chairman of the Canadian Commissioners to investigate the conditions and uses of the waters tributary to the River St. Lawrence, adjacent to the boundary lines between the United States and the Dominion.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "J".

OTTAWA, January 6, 1905.

SIR,—I have the honour to inform you that by a Minute of the Privy Council, dated January 7, 1905, His Excellency the Governor-General has been pleased to appoint Messrs. J. P. Mabee, K. C., of Toronto, and Louis Coste, C. E., of Ottawa, additional members of the International Commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary line between the United States and Canada, to which you were appointed on December 3, 1903.

I inclose a copy of the Minute of Council appointing these gentlemen, and

also an extract from the American Statutes authorizing the appointment of the United States members of the Commission.

Among the subjects that may come up for consideration before this Commission are:

1. The proposed diversion southward by the Minnesota Canal and Power Company of Duluth, of certain waters in the State of Minnesota, that now flow north into the Rainy River and the Lake of the Woods.

2. The diversion about a mile and a half east of the town of Sault Ste. Marie of part of the waters of the St. Marys River into the Hay Canal entirely through American territory. The river St. Marys now forms part of the boundary between the United States and Canada, and the waters of the river are clearly international. The Canadian vessels of necessity are using the Hay Canal, but no treaty has been made concerning their right.

3. Enquiry into the effect of the levels of Lakes Huron and Erie by the construction of the Chicago Canal.

4. The building of the dam and other obstructions on the St. John River, flowing through the State of Maine into New Brunswick, contrary to the express stipulation of the Ashburton Treaty.

The Government are of the opinion that the Canadian members of the Commission should come together at an early date, and I have so informed Messrs. Mabee and Coste, and asked them to confer with you as to the date of meeting.

It is proposed to appoint Mr. Thomas Côté, Journalist, of Montreal, as Secretary to the Canadian section of the Commission.

I have the honour to be, sir, your obedient servant,

(Signed) R. W. SCOTT,
Secretary of State.

W. F. KING, Esq.,
Chief Astronomer,
Department of the Interior, Ottawa.

APPENDIX "K."

Department of State,
Washington, April 15, 1905.

Sir,—Referring to your letter of the 10th ultimo, asking as to the instructions which may be required by the American Commissioners appointed under Section 4 of the River and Harbour Act of 1902(32Sta. L., 373), especially in regard to a question which you state is likely to arise concerning the scope of the Commission's investigation, the Canadian members appearing to be disposed to regard it as taking in all waters adjacent to the boundary line, whether part of the Great Lakes or not, I have to state as follows:—

The wording of the law will be seen by reference to the inclosed copy. The Department's opinion is that the words "including all of the waters of the lakes " and rivers whose natural outlet is by the River St. Lawrence to the Atlantic " Ocean," are intended as a limitation on what precedes them, and that the investigation and report should cover only such waters, omitting the lower St. Lawrence itself as well as all other waters not discharging naturally through it.

The broader interpretation given to the Act by the Canadian authorities should be rejected, if for no other reason on account of the smallness of the appropriation for the support of the American section. Congress could hardly

have intended to provide with a sum of $20,000 for the expenses incident to an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well.

A portion of the report of the Chairman of the River and Harbor Committee, when reporting the bill (copy of Act herewith), treats of Section 4, and would appear to limit the scope of the investigation to the Great Lakes system.

When the ground to be covered has been defined, the law itself appears to be sufficiently detailed to serve as instructions to the American Commissioners.

It seems sufficient, therefore, at the present stage to inform you and the other members of the American section of the views held by the Department as to the scope of the investigation and report, and to request the American Commissioners to assemble and organize as soon as possible after the 20th instant, at this capital, and to submit, after discussion, their own recommendations as to further procedure.

I enclose, also, for your information, copies of letters from Colonel Ernst and Professor Williams in regard to the place of meeting of the Commission.

Copies of your letter of the 10th ultimo, and of this, the Department's reply, have been addressed to Colonel Ernst and Professor Williams for their guidance.

I am, sir, your obedient servant,

(Signed) F. B. LOOMIS,

Acting Secretary.

GEO. CLINTON, Esq.,

Commissioner of the United States,

International Waterways Commission,

1012 Prudential Building, Buffalo, N. Y.

APPENDIX "L."

To His Excellency The Governor-General:

The undersigned has the honour to represent that on the 4th May last, he submitted to Your Excellency's predecessor a Minute of the Executive Council of New Brunswick, calling attention to the erection by the St. John Lumber Company—a United States incorporation—of certain piers and booms in the St. John River, near the village of Van Buren, in the State of Maine, and advised that the attention of the Government of the United States be drawn to the subject, with a view to the removal of the obstruction complained of, the erection of which it was pointed out constitutes a violation of Article III. of what is commonly known as the Ashburton Treaty of 1842; providing that the navigation of the St. John River shall be free and open to both parties and shall in no way be obstructed by either. No answer appears to have been received to this communication.

The undersigned has now the honour to submit to Your Excellency a petition signed by Mr. J. Fraser Gregory, on behalf of certain lumbermen and mill-owners of St. John in convention, pointing out that not only has no action been taken on the petition of the Provincial Government of New Brunswick, but a bill is actually before the Legislature of the State of Maine having for its object the incorporation of another company with powers to construct further piers in the said river almost immediately below those built by the St. John Lumber Company, which formed the subject of the previous remonstrance. Messrs. Gregory

and his associates point out that if the proposed fresh obstructions are allowed to be erected, great damage will ensue to Canadian lumbermen and mill-owners along the St. John River. The undersigned, concurring in this view, recommends that a copy of this memorial be transmitted to His Majesty's Ambassador at Washington, and that Sir Mortimer Durand be again requested to bring the subject to the early attention of the United States authorities with a view not merely to the removal of the obstruction immediately complained of, but also to the postponement of any action on the part of the Maine Legislature with respect to legislation in the direction indicated above, until the International Commission which has recently been appointed to consider the whole question, shall have made its report.

All of which is respectfully submitted.

(Signed) R. W. SCOTT,
Secretary of State.

OTTAWA, February 1, 1905.

FROM LORD GREY TO SIR MORTIMER DURAND:

OTTAWA, February 3, 1905.

SIR,—With reference to my predecessor's despatch, No. 38, of May 5, 1904, requesting that representations might be made to the United States Government in regard to the erection of certain piers and booms in the St. John River, which was considered by this Government to involve a violation of Article III. of the Ashburton Treaty of 1842, I have the honour to enclose a copy of a further report from the Secretary of State of Canada, submitting a petition from certain lumbermen and mill-owners of St. John, New Brunswick, in which it is pointed out that so far from action having been taken to remove the obstruction to the navigation of the river of which complaint was made, a bill is now before the Maine Legislature to incorporate a company with power to construct other piers which will cause further damage to Canadian interests.

Your Excellency will observe that the Minister suggests that the matter again be brought to the attention of the United States authorities, with the view of obtaining the removal of the obstructions complained of, and postponement of action on the bill referred to, until the International Waterways Commission, recently appointed, shall have made its report.

I have, etc.,

(Signed) GREY.

HIS EXCELLENCY THE RIGHT HONOURABLE
SIR MORTIMER DURAND, G. C. M. G., ETC., ETC., ETC.

APPENDIX "M."

SIR H. M. DURAND TO LORD GREY:

BRITISH AMBASSY,
WASHINGTON, February 27, 1905.

MY LORD,—On receipt of Your Excellency's despatch, 3rd, relative to the erection of further piers in the St. John River, I at once addressed a note to the United States Government bringing the matter to their notice, and suggested that action be deferred on the bill pending before the Maine Legislature, and that obstructions already erected should be removed.

I have now the honour to transmit copy of the note which I have received from the United States Secretary of State in reply.

I have, etc.

(Signed) H. M. DURAND.

APPENDIX "N."

DEPARTMENT OF STATE,

WASHINGTON, February 24, 1905.

EXCELLENCY,—I have conferred with my colleagues of the Departments of War and Justice touching the suggestion made in your note of the 11th February, at the instance of the Canadian Government, that it would appear desirable that until the recently appointed Commission on International Waterways has submitted its report, action should be postponed upon a bill now before the Maine Legislature providing for the incorporation of a company with power to construct piers in the St. John River, additional to those complained of in your prior note of May 9, 1904, and that, meanwhile, the obstructions already erected should be removed.

It is the view of my colleagues that, under the 4th section of the River and Harbor Act of June 13, 1902, the function of the International Waterways Commission, the creation of which was authorized and invited by that Act, do not extend beyond the execution of the purposes therein defined, namely, the investigation of the problems of water level, water supply and navigation in the Great Lakes and tributary streams having their natural outlet by the River St. Lawrence to the Atlantic Ocean. The St. John River does not belong to the water system intended to be investigated, and, consequently, the future report of the International Waterways Commission would have no relation to the complaint now presented. It would remain a separate matter for consideration.

The attention of the Attorney-General has again been called to the matter of the existing obstructions in the St. John River.

I have, etc.

(Signed) JOHN HAY.

APPENDIX "O".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by the Governor-General, on March 25, 1905.

The Committee of the Privy Council have had under consideration a despatch dated February 27, 1905, from His Majesty's Ambassador at Washington, concerning the scope of the International Waterways Commission.

The Minister of Public Works, to whom the question was referred, observes that the United States Secretary of State draws attention to the fact that the Act of Congress, authorizing the creation of the Commission, does not extend beyond the execution of the purposes therein defined, viz.: "The investigation " of the problems of water level, water supply and navigation on the Great " Lakes and tributary streams having their natural outlet by the River St. " Lawrence to the Atlantic Ocean."

The Minister further observes that the Secretary of State states that as the St. John River does not belong to the water system intended to be investigated, the future report of the International Waterways Commission can have no relation to a complaint made concerning work executed and to be executed on the St. John River, which would, therefore, remain a separate matter for consideration.

The Minister, in view of the above statement, which would go far to restrict

the range and scope of the International Waterways Commission, has procured a copy of the Act of Congress above referred to, and submits a verbatim copy of Section 4 of Chapter 1079, of the Statutes of the United States, passed by the 57th Congress, the Section in question being as follows, that is to say:—

"That the President of the United States is hereby requested to invite the "Government of Great Britain to join in the formation of an International "Commission, to be composed of three members from the United States and "three who shall represent the interests of the Dominion of Canada, whose duty "it shall be to investigate and report upon the conditions and uses of the waters "adjacent to the boundary line between Canada and the United States, including "all of the waters of lakes and rivers whose natural outlet is by the River St. "Lawrence to the Atlantic Ocean, also upon the maintenance and regulation "of suitable levels; and also upon the effect upon the shores of these waters "and the structures thereon, and upon the interests of navigation by reason "of the diversion of these waters from or change in their natural flow, and "further to report upon the necessary measures regarding such diversion, and "to make such recommendation for improvements and regulations as shall best "subserve the interests of navigation in said waters.

"And said Commissioners shall report upon the advisability of locating a "dam at the outlet of Lake Erie with a view to determining whether such dam "will benefit navigation, and if such structure is deemed advisable, shall make "recommendations to their respective Governments looking to an agreement "or treaty which shall provide for the construction of the same: that they shall "make an estimate of the probable cost thereof."

The Minister further observes that throughout the correspondence which has taken place, prior to the appointment of the Canadian section of the Commission, the terms used have always been identical to those of the Act above referred to, and that it has always been understood that the investigation would bear upon the conditions and uses of the waters adjacent to the boundary line between Canada and the United States, the other waters belonging to the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic Ocean, being stated to be also included therein, but the general scope of the Commission being especially intended to apply to all waters adjacent to the boundary line between Canada and the United States.

The Minister, therefore, is of the opinion that in the despatch under his consideration an unintentional misapprehension has existed as regards the terms of the Act of Congress, and that it is fit and proper that the work of the Commission be not restricted to narrower limits than those indicated by the said Act.

The Minister, therefore, recommends that the necessary representations be made in order that the investigation to be carried on by the said Commission, and the report to be based thereon, shall extend to all the waters adjacent to the boundary line between Canada and the United States, and, therefore, include such portions of the St. John River as will come within the limit assigned by the Act of Congress to the work of the Commission.

The Committee advise that His Excellency be moved to forward a copy of this Minute to His Majesty's Ambassador at Washington.

All of which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "P".

DEPARTMENT OF STATE,
WASHINGTON, May 31, 1905.

EXCELLENCY,—I have the honour to acknowledge the receipt of Mr. O'Beirne's note of the 22nd instant, by which he informs me that he is instructed by Lord Lansdowne to express the hope that the United States Government will see its way, without necessarily conceding the principle of its contention as to the scope of the Waterways Commission, to agree to the wish of the Canadian Government that the Commission should deal with the question of the obstruction of the St. John River.

Serious consideration has been given to Mr. O'Beirne's note, and I regret to reply that this Government is unable to accede to the Canadian Government's wish. As your Ambassy has been advised in a former note, this Government's construction of the Act of Congress is that the Waterways Commission created thereunder has no jurisdiction over the St. John River; and in the opinion of this Government such jurisdiction can be exercised only by authority of Congress. Moreover, as the questions which have arisen regarding the St. John River affect particularly the State of Maine and the Province of New Brunswick, such questions should be considered only by a commission on which both of them shall be represented.

I think I can assure Your Excellency that Congress will, in the early part of its next session, provide for a commission, to be joined with one from Canada, to examine fully into the questions in controversy between the business interests of Maine and those of New Brunswick with regard to the St. John River, and this Government sees no reason why the whole matter may not be satisfactorily adjusted by such a commission within a short period of time.

I have the honour to be, etc.,
(Signed) F. B. LOOMIS,
Acting Secretary.

THE RIGHT HONOURABLE SIR H. M. DURAND, ETC.

APPENDIX "Q".

INTERNATIONAL WATERWAYS COMMISSION

(Canadian Section.)

SECRETARY'S OFFICE,
OTTAWA, June 2, 1905.

HON. W. S. FIELDING
Minister of Finance,
Acting Minister of Public Works, Ottawa, Ont.:

DEAR SIR,—By direction of the Canadian section of the International Waterways Commission, I have the honour to report as follows:—

On May 11th last, the American Commissioners met in Washington and decided to invite the Canadian section to a joint meeting, to be held in Washington on the 25th of the same month.

The Commission actually met at the office of Colonel O. H. Ernst on May 25th, at 10.30 a.m. There were present: Mr. J. P. Mabee, Chairman of the Canadian section; Messrs. W. F. King and Louis Coste, members of the Canadian section, and Mr. Thomas Côté, Secretary of the Canadian section;

Colonel O. H. Ernst, Chairman of the American section; Professor Gardner S. Williams and Mr. George Clinton, members of the American section.

The Commission proceeded in a body to call upon the Secretary of State, and after a brief interview with Mr. F. B. Loomis, First Assistant and Acting Secretary, returned to the first place of meeting, and devoted several hours to an informal discussion of the organization, permanent place of meeting, and scope of duties of the Commission, but came to no conclusion thereon, and at 1.45 p. m. adjourned to meet the next day, at 11 o'clock a.m.

On May 26th, the Commission met again at the office of Colonel Ernst, at 11 o'clock a.m. There were present all the members of the joint Commission and the Secretary of the Canadian section. An organization was effected by the election of Colonel Ernst as Chairman of this meeting, it being agreed that at meetings of the full Commission held on American territory, the Chairman of the American section should preside, and at meetings held on Canadian territory, the Chairman of the Canadian section should preside.

It was decided that for the present the offices of the Canadian section should be established in Toronto, and those of the American section in Buffalo, and that full meetings should be held in one or the other city from time to time, as should be found most convenient.

The American section presented the instructions under which they are acting, as embodied in the following letter, viz.:—

"Department of State,
"Washington, D. C., April 15, 1905.

"George Clinton, Esq.,
"*Commissioner of the United States*,
"International Waterways Commission,
"1012 Prudential Building, Buffalo, N. Y.

"Sir,—Referring to your letter of the 10th ultimo, asking as to the instruc-
" tions which may be required by the American Commissioners appointed under
" Section 4 of the River and Harbor Act of 1902 (Statutes-at-large, Volume 32,
" Page 375), especially in regard to a question which you state is likely to arise
" concerning the scope of the Commission's investigation, the Canadian members
" appearing to be disposed to regard it as taking in all waters adjacent to the
" boundary line, whether part of the Great Lakes or not, I have to state as
" follows:—

"The wording of the law will be seen by reference to the enclosed copy.
" The Department's opinion is that the words, 'including all of the waters of
" 'the lakes and rivers whose natural outlet is by the River St. Lawrence to the
" 'Atlantic Ocean,' are intended as a limitation of what precedes them, and
" that the investigation and report should cover only such waters, omitting the
" lower St. Lawrence itself, as well as all other waters not discharging naturally
" through it.

"The broader interpretation given to the Act by the Canadian authorities
" should be rejected, if for no other reason, on account of the smallness of the
" appropriation for the support of the American section. Congress could hardly
" have intended to provide, with a sum of $20,000, for the expenses incident
" to an investigation extending to the Pacific Coast, and possibly embracing the
" Alaskan boundary as well.

"A portion of the report of the Chairman of the River and Harbour Com-
" mittee, when reporting the bill (copy of Act herewith) treats of Section 4, and
" would appear to limit the scope of the investigation to the Great Lakes system.

"When the ground to be covered has been defined, the law itself appears
" to be sufficiently detailed to serve as instructions to the American Commis-
" sioners.

"It seems sufficient, therefore, at the present stage, to inform you and the

" other members of the American section of the views held by the Department " as to the scope of the investigation and report; and to request the American " Commissioners to assemble and organize, as soon as possible after the 20th " instant, at this capital, and to submit, after discussion, their own recommenda- " tions as to further procedure.

"I enclose, also, for your information, copies of letters from Colonel Ernst " and Professor Williams, in regard to the place of meeting of the Commission.

"Copies of your letter of the 10th ultimo and of this, the Department's " reply, have been addressed to Colonel Ernst and Professor Williams for their " guidance.

"I am, sir, your obedient servant,

" (Signed) F. B. LOOMIS,

"*Acting Secretary.*"

The Canadian section then communicated to the American Commissioners the views of the Canadian Government, which are embodied in the following extract from a report of the Committee of the Honourable the Privy Council, approved by the Governor-General on March 25, 1905:—

"The Committee of the Privy Council have had under consideration a despatch, dated February 27, 1905, &c., &c."

(See Order-in-Council, referred to under heading of Appendix "O," page 26, of this report.)

The Canadian Section then presented the following memorandum:

"The Canadian members of the International Waterways Commission had understood the scope of the Commission to be wider, &c., &c."

(This memorandum will be found at page 6 of this report.)

(Signed) J. P. MABEE,

Chairman Canadian Section.

WASHINGTON, D. C., May 26, 1905.

The chairman of the American section stated that he was informed that the British Government had communicated with the American Government through diplomatic channels, requesting that the broader interpretation above described be given to the law of Congress, providing for the Commission, that the American Government had the matter under consideration, and that a decision could not be expected before the return of Secretary Taft to the city on Monday the 29th, or Tuesday the 30th ultimo.

It was decided that further action be deferred until the decision be given, and until further instructions be received from the two Governments. It was further decided that the decision of the American Government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favourable to the Canadian interpretation of the law, or if it be unfavourable and be accepted by the Canadian Government, then a meeting of the Commission shall be called at Ottawa by the chairman of the Canadian section at as early a date as may be convenient to the members.

At 12.30 p. m. the Commission took recess until 4 p. m.

The Commission reconvened at 4 p.m., and having heard the minutes of preceding meetings read, approved them, and then adjourned *sine die*.

On Monday, May 29th, I called at the British Embassy and handed to His Excellency the Right Honourable Sir H. Mortimer Durand, copy of the minutes of the proceedings of the preliminary meetings of the Commission. He

informed me that he would call on Wednesday, May 31st, on Secretary of War Taft and on Acting Secretary of State Loomis, to press again the Canadian interpretation of the Act of Congress, passed in 1902, and authorizing the formation of the Commission.

I have received to-day from Mr. O'Beirne, Secretary of the British Embassy and the charge d'affaires in Washington, during the absence of Sir H. Mortimer Durand, the following telegram: "This Government regret they cannot agree " with your Commission dealing with St. John River. Have wired fully " Governor-General. (Signed) O'Beirne.' '

The Canadian section is now awaiting further instructions from His Excellency the Governor-General-in-Council.

All of which is respectfully submitted.

(Signed) THOMAS COTÉ,
Secretary Canadian Section.

APPENDIX "R".

INTERNATIONAL WATERWAYS COMMISSION

(American Section)

OFFICE OF CHAIRMAN, ROOM 328, MILLS BUILDING,
WASHINGTON, D. C., June 2, 1905.

DEAR SIR,—I have the honour to inform you that our Government has found itself unable, after very serious consideration of the question, and after having submitted it to the Attorney-General, to accede to the desire of the Canadian Government to include the St. John River within the scope of the Commission's work, and that I am authorized to communciate this decision to you informally. It has been communicated formally to the British Government through diplomatic channels.

I am further authorized to assure you that it is the firm expectation of our Government that our Congress will, in the early part of its next session, provide for a commission to work jointly with one from Canada to examine fully into the questions in controversy between the business interests of Maine and New Brunswick, with regard to the St. John River.

Allow me to express the hope that this decision will not prevent the prosecution of the work of the Commission within the field prescribed to the American section, as communicated to you at our session held here on the 25th and 26th ultimo, and that I shall have many opportunities for renewing the agreeable acquaintance so auspiciously begun on that occasion.

Yours very respectfully,

(Signed) O. H. ERNST,
Colonel Corps of Engineers, Chairman American Section.

J. P. MABEE, ESQ.,
Chairman Canadian Section,
International Waterways Commission,
Bank of Toronto Building, Toronto, Canada.

APPENDIX "S".

INTERNATIONAL WATERWAYS COMMISSION

(Canadian Section)

OFFICE OF CHAIRMAN, BANK OF TORONTO BUILDING,
TORONTO, June 7, 1905.

MY DEAR SIR,—I have the honour of acknowledging yours of June 2nd, advising me that the Government of the United States, after very serious consideration, has found itself unable to accede to the desire of the Canadian Government to include the St. John River within the scope of the Commission's work, but at the same time assuring me that it is the firm expectation of your Government that Congress will, in the early part of its next session, provide for a commission, to work jointly with one from Canada, to examine fully into the questions in controversy between the business interests of Maine and New Brunswick with regard to the St. John River.

The final position taken by your Government has been laid before the Government of Canada, and I have the honour of informing you that with full reliance of your assurance relating to the unfortunate differences regarding the uses of the waters of the St. John River, our Government has authorized the Canadian Commissioners to proceed with the inquiry within the field prescribed by the interpretation placed upon the Act of Congress by your Attorney-General, and at the same time, I am specially charged by the Premier of Canada to draw the attention of your section of the Commission to the condition of matters along the St. John River, and to the necessity of prompt joint action thereon.

A meeting of our section has been called for to-morrow, and I shall advise you at once of the date suggested for a joint meeting, pursuant to our arrangement at Washington.

Personally, I am gratified at the conclusion arrived at by our Government, and I am sure that my brother Commissioners of the Canadian section will look forward with great pleasure to the future joint meetings of these Commissions.

Believe me, my dear sir, yours very respectfully,

(Signed) J. P. MABEE,
Chairman of Canadian Section,
International Waterways Commission.

COLONEL O. H. ERNST,
Chairman American Section,
International Waterways Commission,
Mills Building, Washington, United States of America.

APPENDIX "T".

Extract from a Report of the Committee of the Honourable the Privy Council, approved by the Governor-General, on November 29, 1905.

On a report dated November 17, 1905, from the Minister of Public Works, submitting that at a meeting of the International Waterways Commission in the City of Buffalo, State of New York, on October 28, 1905, the following two reso-

lutions, having reference to the use for manufacturing purposes of the waters of the River St. Mary and of River Niagara, were proposed and adopted:

"RESOLVED:—That this Commission recommends to the Governments " of the United States and Canada that such steps as they may regard as neces- " sary be taken to prevent any corporate right or franchises being granted or " renewed by either Federal, State or Provincial authority, for the use of the " waters of the Niagara River for power or other purposes until this Commission " is able to collect the information necessary to enable it to report fully upon the " 'conditions and uses' of those waters to the respective Governments of the " United States and Canada."

(Signed) J. P. MABEE,
Chairman Canadian Section.
(Signed) O. H. ERNST,
Chairman American Section.

"RESOLVED:—That in the opinion of this Commission no further rights " or franchises should be granted or conferred regarding the uses or diversions " of the water flowing out of Lake Superior, by either the Government of the " United States or Canada, until all data and information are in the hands of " the Commission that may be neccesary to enable it to make suggestions for " regulating the excess of these waters, or that, if such privileges be granted, " they be subject to any regulations that may be adopted by both Govern- " ments."

(Signed) J. P. MABEE,
Chairman Canadian Section.
(Signed) O. H. ERNST,
Chairman American Section.

The Minister recommends—with a view to ratifying the above regulations—that the Government of Ontario be communicated with, laying before that Government contents of said resolutions, with a request that such means be adopted as may be thought proper to ensure their being carried out.

The Committee submit the same for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "U."

Whereas, by the River and Harbour Act, approved June 13, 1902, it is provided (32 Stats. L., 361) that, subject to the conditions therein mentioned:

"The Michigan Lake Superior Power Company, of Sault Ste. Marie, Mich- " igan, its successors and assigns, after first obtaining consent of the Secretary " of War and the Chief of Engineers and their approval of the said canal and " remedial works proposed, is hereby authorized to divert water from the St. " Marys River into its water-power canal, now being constructed at Sault Ste. " Marie, Michigan, for water-power purposes, while and so long as such works " and diversion of water from said river shall not injuriously affect navigation " therein, nor impair or diminish the water levels or any natural increase thereof, " either in Lake Superior, or in the United States ship canal and locks, or the " navigable channels, locks, or ship canals connected therewith, whether natural " or artificial, now existing or which may hereafter be established or created by " the United States for navigation purposes;"

And Whereas the said Michigan Lake Superior Power Company has submitted for the approval of the Secretary of War and the Chief of Engineers plans of its water-power canal and remedial works for the diversion of the water from the St. Marys River, authorized by said Act and has applied for consent of the Secretary of War and Chief of Engineers to such diversions;

And Whereas, the Chief of Engineers has approved the said plans and has given his consent to such diversion, subject to the acceptance by said Company of the conditions hereinafter specified:

Now, Therefore, this is to certify that the Secretary of War hereby approves the said plans, which are hereto attached, and hereby gives his consent to the diversion of water from the St. Marys River, as authorized by said Act, subject to the acceptance by said Company of the following conditions:

1. That the regulation works, including escape valves at power, controlling works, and remedial works, shall be operated under the inspection of the engineer officer in charge of the St. Marys Falls Canal, who shall have access to them at all times.

2. That when the mean level of Lake Superior at the canal for any calendar month falls below 601.5 feet above mean tide at New York, according to the levels of the United States Lake Survey Office, the flow through the canal shall be reduced, the amount of reduction increasing as the monthly mean level falls until it reaches 601.0, when all flow shall be stopped until the monthly mean level again exceeds 601.0, all without claim against the United States or against any officer thereof.

3. That in addition to the requirements of condition 2 (supra), all flow shall likewise be stopped, without claim against the United States, or against any officer thereof, should the monthly mean level of the lake remain below 601.5 for a period of six consecutive calendar months, and shall not be resumed until the monthly mean level shall exceed 601.5.

4. That when the monthly mean level rises above 603.0, the flow through the canal and the remedial works shall be increased to their maximum capacity, and shall so continue until the monthly mean level shall be less than 603.0, without claim against the United States or against any officer thereof.

5. That should the monthly mean level of the lake remain above 603.0 for a period of six consecutive calendar months, said Company shall alter its work at its own expense as soon as practicable, so as to allow more flow.

6. That the United States shall have the right to assume entire control of the flow of water through the canal and remedial works in cases of accidents, or of emergencies temporarily affecting navigation through the United States ship canal.

7. That should cross currents detrimental to navigation be created by the intake or by the outflow of the canal, said Company shall construct such booms, training walls, or other works as may be necessary to remedy the evil.

8. That said Company, in its arrangement and construction of remedial works shall leave a suitable channel and water flow for the passage of logs over and through St. Marys Falls.

9. That these limitations are in addition to the special limitations of the Act of June 13, 1902, regarding riparian or other rights of any person or corporation and the remedies therefor.

10. That the elevations above mean tide at New York, above specified, are those established and in use at this date by the office of the survey of the northern and northwestern lakes, commonly known as the Lake Survey Office, at Detroit, Michigan.

11. Finally, the object and aim of the foregoing paragraph being to hold the waters of the Lake and River under the absolute control of the United States in the interest of navigation, it is expressly understood that said Company shall not be entitled to damages should the Government at any time or for any cause

exercise its right to control and suspend the flow of water through the power canal, in the interest of navigation.

Witness my hand this 12th day December, 1902.

(Signed) ELIHU ROOT,
Secretary of War.

This instrument is also executed by the Michigan Lake Superior Power Company, by Francis H. Clergue, its president, thereunto lawfully authorized, this 9th day December, 1902, in testimony of the acceptance by said Company of the foregoing conditions.

THE MICHIGAN LAKE SUPERIOR POWER COMPANY.
(Signed) By Francis H. Clergue, President.

Attest:
H. Von Schon,
F. T. Trempe.
(Seal)

APPENDIX "V".

(*Translated from the original.*)

Thomas Côté, Esq.,
Secretary International Waterways Commission.
Ottawa, Ont.

Sir,—At your request I went to Niagara in the latter half of October last. The object was, as you had written me a few days before, to determine whether the cataract will continue to recede at a rate equal to that observed since 1842.

There is no need to point out that a problem, to which geologists have already given years of work without having attained an absolutely certain result, could hardly be solved by a few days' study. However, my visit to Niagara was very useful to me, inasmuch as I could thereby verify *de visu* the facts already published, to say nothing of the personal observations which I was enabled to make.

The result of my studies upon this question is briefly summarized in the report which I now have the honour to submit. You will observe that of the authors whom I quote in my paper, not one is Canadian. I thought this would be preferable, with regard to our American friends, since it closes the door to the slightest suspicion of partiality.

I have the honour to be, sir, your obedient servant.

(Signed) J. C. K. LAFLAMME.

Quebec, November 9, 1905.

NOTES ON THE RETROCESSION OF NIAGARA FALLS.

Summary:—

1. Uncertainties of the geological chronicle as relating to the hollowing out of the gorge and to the retrocession on the Falls of Niagara.
2. Character of the retrocession of the cataract.
3. Irregular course of the erosion at Niagara, in the past and in the future.
4. Limit of the rapid retrocession.
5. Secular oscillations of the basin of the Great Lakes and their influence on Niagara River.
6. Variations of the volume of water in the river, both on the Canadian and on the American side.
7. Influence of the electric works on the cataract.
8. Conclusion.

1. I will not undertake to give either the geological history of the Niagara River or that of the Falls. The history of the past has no part in the programme assigned to me. Moreover, to estimate what Niagara has been, through bygone geological ages, is an extremely complex problem. For more than half a century many great geologists, Canadian and American, have thoroughly studied the subject. In spite of their labours, and notwithstanding all the hypotheses, born of their investigations, or perhaps, owing to these very hypotheses it must be confessed that the question is far from being solved. If, in the main, the history of the Falls is now fairly well known, the details are yet ungrasped. And in the present instance, the details are of more importance than the general facts definitively recognized by science.

This disagreement among geologists becomes more evident when it is remembered that some of the best known assign 5,000 years as the time taken by the cataract to cut out its bed from the heights of Queenston to its present site, while others, of equal scientific standing, assert that no less than 50,000 years were required for hollowing out Niagara's gorge. Between these extreme figures are to be found the estimates of many others, which suffices to show that upon this point of the history of Niagara, agreement is far from absolute, and to prove, also, how uncertain and how susceptible to different interpretations are the data upon which we have to work.

I might, perhaps, say as much in regard to the specific question of the retrocession of the fall. The fact is known to almost everyone. But it is only since 1842 that measurements were made and that definite data were obtained.

Before that time, from Father Hennepin, in 1673, to the triangulation by James Hall, in 1842, it could be said that the Horseshoe had retreated, but, to what extent no one could definitely ascertain.

As it is this retrocession of the Falls which I have had more particularly to study, it may be well to detail the actual process as agreed on by all geologists.

2. On the whole length of the crest of the cataract, water flows over a thick bed of dolomitic limestone.

The upper layers, much broken and furrowed, overlie other parallel strata, more compact and more resisting. The whole is what is called the Lockport or Niagara Limestone. It is over the first series of these strata that the water of the river descends from the head of the rapids to the cataract.

Under this limestone, and parallel to it, lies a mass of foliated compact argillite, that constitutes almost all of the lower portion of the bank. These schistose masses are demolished both by the rebound from below, and the direct attack of the falling waters from above. They crumble and disappear, so that sooner or later the limestone layers above become overhanging, when deprived of the support which upheld them, then give way under the weight of the rushing water, and in falling cause the crest of the cataract to recede. Later, the same process is repeated, bringing about, each time, retrocession of the crest.

It is not then, as might be thought, the friction, although enormous, of the water, which wears away the layers of the bottom and causes them little by little to disappear; it is, rather, the destruction of the support of these beds which brings about their fall in large or small quantities. The process is one of demolition rather then one of erosion or dissolution.

3. Consequently, the extent of the retrocession, its direction, and its limit, all depend on data rather difficult to elucidate in detail, should there be reached a greater hardness in the argillitic lower beds; or again, should the limestone strata become more compact and more resisting, the retrocession will become slower. Reverse modifications in the physical condition of the beds would hasten it.

Differences on the resistance of the geological strata have equally to be taken into account when it is a question of forecasting the direction in which the retrocession will take place. Such direction must be largely influenced by the fact that through the vast expanse of the Horseshoe, some parts will naturally give

way more easily than others under the disintegrating action of the waters. Finally, it must not be forgotten that, if the mass of waters be greater at one point than another, the limestone will break away sooner there than elsewhere, and the retrocession at such a point will be to the extent accelerated.

This will explain why the retreating of the Canadian Falls is three or four times more rapid than that of the American; why it takes place, so to speak, by spells, now quickly, now slowly *; why again it is more pronounced at certain points of the Horseshoe than at others: and why, lastly, it happens that it is not always most marked where there is most water.

It is therefore evident that the yearly rate of retreat of the cataract is continually varying, but further inquiry may question whether the figures given are strictly accurate. It must be remembered that the exact determination of the crest line of the Horseshoe, on which depends the estimation of the extent of the retrocession, can only be determind by a very minute triangulation based upon a certain number of fixed points on the shores and other points equally stable selected along the crest itself. Now, nothing is more unstable than a sheet of falling water. It may happen, and doubtless it does sometimes happen, that some of the points selected as guiding marks on the crest of the falls be not recognizable at the different shore stations or be confounded with near-by marks.

This explains certain anomalies to be found in the profiles of the Horseshoe as traced in 1842, 1875, 1886 and 1890, and reproduced by Mr. Spencer in 1894.† Unquestionably the strangest of them is to find that the profile of the Horseshoe is farther back in 1886 than in 1890, for at this particular point the fall is shown to have come forward during these years instead of receding. The same may be said about the profile of 1875 and 1886; they overlap each other on the west side of the Horseshoe.

Therefore, the problem to be solved, when measuring the retreat, is a very difficult one in its ultimate details, and only approximate figures can be reached, with little importance attaching to the fractions of a foot which the computation may give.

As a general conclusion, it may be said, without fear of contradiction, that we are not sufficiently acquainted with the intimate physical structure of the banks of limestone and shale that occasion the cataract to recede, to state positively either what is the regular rate of retreat, or that it will continue indefinitely, at the same rate, in the direction it has followed during, say, the last fifty years. At the present it seems to follow the outline of Goat Island; whether it will always do so, is unknown to us.

In the opinion of Mr. J. W. Spencer, whom I had the pleasure of meeting at Niagara, and whose geological studies of this locality, carried on for many years with an untiring devotion, are of great value, the erosion will continue for a time toward Goat Island, after which the western side will be affected.

A peculiar phenomenon occurs at the Falls; powerful jets of water from time to time spout upwards a hundred feet above the crest of the Horseshoe; they appear to be geyser-like explosions, brought about by a sudden very powerful vertical action. Their localization is quite definite. They are only seen where the two sides of the Horseshoe are closest together. It must be remembered that the regularity of the curve that gave the name of Horseshoe to the Canadian

*Mr. Grabau, in his Geology and Palætiology of Niagara Falls and vicinity, p. 83 gives the following figures as representing the mean retrocession of the Horseshoe as evinced by measurements made by Hall in 1842; by the Engineers of the Lake Survey in 1875; by R. S. Woodward in 1886, and by M. S. Kibbe, in 1890. Niagara retreated 2.01 feet per year from 1842 to 1875, 1.86 feet from 1875 to 1886, and 5.01 feet from 1886 to 1890. Last summer Mr. Spencer proceeded, with greatest care, to make new determinations of the profile of the cataract. They will, probably, when the computations are finished, give us another figure.

†"Duration of Niagara Falls." The American Journal of Science, Dec. 1894, p. 461.

fall is now only to be seen at its extremities. The central part more nearly resembles a fairly sharp "V." It is at the apex of this "V" that the vertical spurts take place.

Many think them to be caused by air compressed behind the curtain of the cataract, which it rends from time to time in forcing an outlet. If this be so, why should this compressed air not escape at each end of the curtain by following the profile of the escarpment? There is no lack of space, since one can go behind the falling mass of water. Besides, when visiting the Canadian tunnel, which opens behind the enormous fall, there is no sensation of compressed air. Some would certainly exist there, although in a lesser degree than at the centre. Moreover, why should these explosions take place upwards and not perpendicularly to the falling sheet of water? I rather incline to see in them a hydraulic ram effect. The huge mass of rushing water meets jutting rocks, which it strikes with energy sufficient to shoot a part of this water to a higher point than the starting level.

But whatever may be the explanation of these mighty spouts they are an evidence of extreme mechanical action, a powerful process of erosion taking place at the apex of the "V," and so long as the crest of the Horseshoe keeps its present profile it must be at that point that the greatest amount of erosion will take place.

The caving in of large areas on the sides of the Horseshoe may modify this state of things and prevent the point of the "V" from eating away more ground than the rest.

4. Now, to resume the question of the Falls, from which these digressions have carried us.

I have attempted, above, to show the uncertainty of the computations hitherto made, regarding the rate of retreat. Moreover, even assuming these figures to be accurate, there is doubt if this rate will be maintained invariably and ever constant at the mean of the last fifty years.

As the Falls retreat, the thickness of the hard limestone beds increases. It will have reached its maximum when the point of the Horseshoe has arrived at the line of shoals close to the south end of Goat Island. On the other hand, the friable argillitic underpart of the profile of the escarpment decreases in thickness as the Falls draw nearer Lake Erie, owing to the general dip of the layers toward the south. Dr. J H. Clarke, New York State Geologist, believes that when the cataract has reached the line of shoals above mentioned, the escarpment, will be wholly composed of the limestone strata, the dip of the argillites southward having reached the lower level of the river bed. By that time the fall will have grown some fifty feet higher than it now is, and the retreat, being thereafter exclusively the result of the wear of the limestone, will become slower.

5. A factor that must seriously affect this study of Niagara is the weight of the volume of water precipitated into the chasm. If, as before stated, the volume of water varies, one of the weightiest causes of retreat must also vary in the same proportion, and all the deductions drawn from the present data will suffer should there be any difference in the flow of the Niagara River. Now geologists tell us that the part of the surface of the American continent that includes the Great Lakes is subject to slow oscillations, which result in a general upheaval on the north-east or a sinking on the south-west. This secular crustal movement, slow, but continuous, will begin by retarding the flow of the water running north-easterly. Then, a time will come when Lakes Superior, Michigan, Huron and Erie, instead of draining through Lake Ontario, will send their waters toward the Mississippi through the southern extremity of Lake Michigan.

I may borrow the following figures from Mr. Grabau:* In 2,000 years Illinois and Niagara Rivers will share equally the waters of the Great Lakes. In 2,500 years, the Niagara will have but an intermittent flow. In 3,000 years Niagara

*Loc-cit. p. 65.

will be no more, and all the immense hydrographic basin of the Great Lakes, save that of Lake Ontario, will drain into the Mississippi. Therefore, until then, discharge of Niagara must continually decrease and the eating away of the Falls will vary accordingly. We will see, later on, what is to be thought of these figures.

But before going further, are these crustal movements really so regular and constant, as they are said to be? They are found in Scandinavia, in Greenland, and on a number of other coasts. It is also known, however, that they do not occur with regularity, nor do they always work in the same way.

According to Dr. Clarke,* the shore at Percé on the Gaspe Coast, which was going down fifty years ago, is now rising. Who is unacquainted with the classic example of the famous temple of Serapis, in Italy, which, after having been for a long time buried under water, owing to the settling of the soil, emerged later on and attained several centuries ago, a level that has not varied since?

The crustal movements have every variety of period; some may be secular, some may last a few years only, and, to refer specially to the movement which may be affecting Niagara River, nobody yet knows its period. It may continue, it may come to an end, or it may reverse itself. It is, therefore, impossible upon such uncertain data to make very positive assertions, the reliability of which could never go beyond that of the premises. Such was the position lately taken by Dr. Clarke.

Consequently, the possible oscillations of the basin of the Great Lakes, are hardly worth taking into consideration in the study of such a problem as we have before us, unless we be willing to extend conjectures to a future so remote as to deprive them of any interest.

6. It may be asked whether the recession of the Falls will lessen the quantity of water which now flows along the Canadian shore in the upper rapids. On that score I do not believe that we have much to fear. No matter what direction the retreat may take, we shall have always more water than the Americans. The level of the river bed is lower on our side. The first sill of the upper rapids crosses the whole of the river dipping towards the Canadian shore; at this point it is considerably lower than on the American side. The Canadian fall is about ten feet lower than the American side and the water naturally bears towards our side; if the hollowing out of the Horseshoe should result in a modification of the general level of the river, there is reason to believe that we would not be the sufferers.

Moreover, it must not be forgotten that the Niagara River, where the Falls now exist, turns at almost a right angle, from south-east to north-west, and that, consequently, the great mass of its water strikes the Canadian shore before taking its new course.

The American channel barely carries the surplus. Already, in order to protect the Canadian wall from erosion, special measures have been taken.

The effect of this deviation is all the more accentuated since the bed of the river becomes much narrower at the very point where its course is changed. The flow is, so to speak, choked between Goat Island and the Canadian shore. The mass increasing, has a more marked tendency, by virtue of its inertia, to continue on its first course and thereby to bear towards our side.

It therefore matters little to us whether the new Horseshoe gorge in process of formation follows the centre of the river, or, as it had done for the last half century, works its way parallel to the shore of Goat Island. We do not believe that the volume of the Canadian waters will be seriously affected thereby.

The same thing cannot be said of the American channel. It will be dry before the new Horseshoe gorge has reached the line which joins the upper end of Goat Island to Dufferin Islands.

Already, owing to tappings made at different points of the river, above the falls, the general level has been so modified that nearly every spring, according

*Loc-cit. p. 490.

to the citizens of Niagara, the ice from Lake Erie, not finding enough water to float it, runs aground at the entrance of the American channel and blocks it completely; so that the American fall for a few days ceases to exist. This phenomenon, which was exceptional before the establishment of the electric works, seems to have become an almost annual one.

7. Permit me to make the statement here, although this matter is not directly relevant to my instructions, that the danger which really threatens Niagara Falls is not so much from the wearing of its bed as from the abstraction of a large proportion of its waters by the electrical companies now, or likely to be, established.

Already, according to Dr. Clarke,* when the five electric companies now in operation at Niagara produce to their charter limits and abstract a total of 48,000 cubic feet of water per second, the water level will reach the bottom of the river at the American shore. And if these abstractions are multiplied, always above the Falls, the American fall will disappear finally; even the Horseshoe will lose a part of its majestic splendour.

Though, as before observed, this question, an extremely delicate one, whether considered from the standpoint of public or private interests, does not strictly enter into the scope of the present notes, I have deemed it well to place my views on it before the International Commissioners, in view of their high competence, of the great influence it is in their power to exercise with the constituted authorities. I may add that the preservation of the Falls in their present general state may itself become the object of an international understanding.

So grand a natural phenomenon, which every year attracts, it is said, more than eight hundred thousand visitors, is surely worth considering the insurance of its perpetuity.

On this subject may be read to advantage the very interesting paper by Dr. Clarke, entitled "The Menace to Niagara", published in the Popular Science Monthly for April last, and from which I have freely borrowed for the present report. In it the question is treated without *parti pris* and with great soundness of independent judgment.

8. Conclusion. Every year Niagara Falls are receding. The process of this retrocession is such that it is impossible to formulate any precise forecast as to its future rate and direction outside of generalities, all is more or less problematic.

This phenomenon is liable to many variations, owing to possible changes in the physical consistency of the geological beds over which the water descends. "What will be the character of the channel which is now being formed", says Mr. Grabau, "can only be a matter of conjecture."

At all events, I do not think the Canadian waters are, for long years to come, apt to suffer greatly from the retreat of the Falls, whatever be its direction.

During the recedence of the Horseshoe towards the upper sill of the rapids, everything leads me to believe that the Canadian side will always have its great share of the hydraulic force of the river.

Once the Falls have reached the upper ledge of the rapids in many hundreds of years (1,000 years, according to Grabau), assuming that the mean rate of retreat remain constant, which is far from certain, the retreat of the cataract will enter into a phase of relative rest and the erosion will henceforth hardly take any other form than the wearing out of the lips of the new gorge, particularly that of the Canadian side.

The American channel will have then long disappeared, and the intakes of the Canadian works, after having gradually become impoverished as the line of the fall is rectified and identified with the sill of the upper rapids, will end by being dry.

The fall will then be at the first sills of the rapids. It will be higher than the present cataract by some fifty feet, and will noticeably resemble the drawing which

*Loc-cit. p. 500.

Father Hennepin left us of that which he saw in 1673, when the Horseshoe did not exist, and the American and the Canadian falls were on one plain. The only difference will be that the fall will then be single, Goat Island having joined the American shore.

Any one desirous of knowing in how many years the Falls will reach that point should study the figures of Mr. Grabau, quoted above. Perhaps it is more prudent to simply say with Dr. Clarke, that these estimates of geological chronology express interesting possibilities, but hardly rise to the dignity of probabilities.*

Mr. Grabau† himself, after having reproduced the figures which, according to C. H. Hitchcock, G. F. Wright, Spencer, Taylor, Pohlman and Lyell, give the geological age of Niagara, very wisely concluded by the statement that such figures are hardly more than the expression of personal opinions, and that they exclusively reflect the ideas which these writers have formed as to the rapidity of the erosion caused by the river. And he adds that there may be a reverse of causes still unknown which may have contributed, in a large measure, to lengthen or shorten this period. These causes, once known, will probably entail the revising of all calculations and will, no doubt, lead to different results.

In continuation of this thesis, it might be said that the factors yet undiscovered will possibly considerably modify all that has already been thought and written on the retreat of the Falls in particular. I believe there are few scientific problems in which the personal equation plays so great a part. This is why the present report, while being little more than a summary of the principal works on Niagara, contains such a small proportion of the figures and calculations so abundant in the numerous monographics written on the subject.

(Signed) J. C. K. LAFLAMME.

Quebec, November 9, 1905.

APPENDIX "W."

Department of State,
Washington, January 25, 1905.

My Dear Mr. Ambassador,—With reference to your note of the 3rd instant, asking that a scheme for diverting the waters tributary to the international water boundary system by the Minnesota Canal and Power Company, of Duluth, Minnesota, be not carried out, pending the meeting of the International Water Boundary Commission, I take pleasure in informing you that I have received a letter, dated the 19th instant, from the Secretary of the Interior, stating that his Department had directed the Commissioner of the General Office, before whom the application of the said Company is pending, to suspend further action in the case, until advised as to the results of the international boundary inquiry.

I am, etc.,
(Signed) FRANCIS B. LOOMIS.

His Excellency The Right Honourable Sir H. M. Durand, G. C. M. G.

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*Loc-cit. p. 489.
†Loc-cit. p. 85.

APPENDIX "X."

Extract from a Report of the Committee of the Honourable the Privy Council, approved by the Governor-General on September 19, 1905.

On a report dated August 11, 1905, from the Minister of Public Works, stating that in January, 1905, Mr. Edward Wellington Backus, of Minneapolis, made an application for himself and those associated with him under Chapter 92 of the Revised Statutes of Canada, for the right to construct a power dam across the Rainy River from a point in the town plot of Alberton, now the Town of Fort Francis, to a point in the State of Minnesota, U. S., opposite the said Town of Fort Francis.

The Minister further states that with this application were also transmitted to the Department of Public Works, plans showing the nature of the work to be performed, one being a sketch showing the location, and the other showing details of the mode of construction of the work.

The Minister further states that on January 19, 1905, the said E. W. Backus made with the Government of the Province of Ontario a certain agreement whereby the applicants obtained from the Government of the said Province a grant in fee of lands and power on the Canadian side of the International boundary for the purpose of developing the water-power there and utilizing storage facilities with a view of creating a large amount of power for the operation of mills and other manufacturing establishments, the consideration of such acquisition being stated in the agreement at $5,000.00; the agreement in question containing several conditions as regards the character and dimensions of the works; the raising and maintaining of the waters of Rainy Lake; the use or non-use of flash-boards; the construction of power-houses; the expenditure of $50,000.00 on the works within nine months from the date of the agreement; the delivery of power to the Town of Fort Francis after January 1, 1907, for municipal purposes and for public utilities; the operation and delivery of said power; the rate at which it shall be furnished; the intervention of the Lieutenant-Govenor-in-Council concerning the price of the power or energy to be created, and several other agreements of different kinds always bearing upon the delivery and price of the energy to be manufactured out of the works approved by the agreement.

That the agreement also, in Clause 14 thereof, reserves and excepts all the rights of the Dominion of Canada in navigation and the improvement thereof by the construction of locks, dams, canals, and otherwise, the Government of the Dominion or the Province of Ontario to have the power to enter upon the premises and maintain and repair such canals, locks, dams or other works for the improvement of navigation without compensation. It is also agreed that no sawdust, chemical or other refuse of any kind shall be placed or deposited in the river, etc.

That the application so made by Mr. E. W. Backus, on behalf of the Ontario & Minnesota Power Company, was referred to the Chief Engineer of the Department of Public Works for report, and that the officer in question stated that in so far as the construction of the dam is concerned it would in no way interfere with navigation above or below the falls of Fort Francis but would, in fact, be an improvement; that the dangerous rapids two miles above Fort Francis would be flooded, thereby improving materially the navigation; that the freshet waters stored in Rainy Lake could be let out during the season of low water, thereby also considerably improving the navigation of the river between Fort Francis and Lake of the Woods; and that the only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to be constructed by the Company, and also by a clause in the Act of Incorporation of the Company, which makes all damages to lands caused by their works a charge to be borne by them. The resident Engineer quotes the opinion of the Chief Engineer

of the United States Army, who says that the height of the dam appears to him unobjectionable, provided that the said dam is operated so as not to reduce the flow of Rainy Lake during the low water season.

That in addition to the report obtained from the Engineer of the Department of Public Works the matter was referred to the Department of Justice, and that it reported that, in so far as the Dominion Government was interested in the proposed works it had to consider them in so far as they affected the navigation and in so far as they affected the fishing, and also in so far as they could affect an unfinished canal and lock at the place where the dam is to be erected.

That at the Session of Parliament just closed the Ontario & Minnesota Power Company have obtained an Act by which that Company are authorized to construct and operate a water-power now existing at Fort Francis and build all necessary works for that purpose, provided no work so authorized shall be commenced until plans thereof shall have been submitted to and approved by the Governor-General-in-Council. The Act in question contains several clauses referring to the production of power or electrical energy, the delivery thereof, the construction of power-houses etc., the settlement of the price for power by the Board of Railway Commissioners; a clause is also inserted to prevent the diversion of that energy for use in the United States without an order of the said Railway Commissioners, the Board having full jurisdiction to enquire into the matter as often as necessary, and to prescribe any action on the part of the Company not inconsistent with the Act passed, etc.

That on communication with them on the matter, the Department of Marine and Fisheries have sent to the Department of Public Works a plan of the fishway which they think should be erected by the Company in connection with their works, the said fishway to be built subject to the inspection and approval of an officer of the Department of Marine and Fisheries.

The Minister recommends, in view of the above application of the Ontario & Minnesota Power Company; of this agreement with the Government of the Province of Ontario, a copy of which is hereto annexed; of the Act passed by the Parliament at its last Session, and of the reports made by the Chief Engineer of the Department of Public Works, and the report of the Department of Justice, that authority be given to approve of the plans submitted by the said Company, subject to the following conditions, viz.:—

1st. That the Company shall not, in the execution of their works, construct them in such a manner that they will in any way interfere with the navigation of the Rainy River either above or below the point where the works are to be constructed at any time during the season of navigation, and that they shall not increase the height of water either by the construction of the dam itself or by placing flash-boards upon the said dam in such a way as to reduce the natural depth of water below said dam, nor generally will they interfere in any way detrimental to the said navigation.

2nd. That at any time during the construction of the works, or after their construction or during their operation, the Minister of Public Works shall have the power, when it shall appear to him necessary after a proper examination, to regulate the retention or flow of water by or over the dam; to enter on the works for such investigation, and also to have the right to make such regulations and issue such instructions as may, to said Minister, appear advisable and necessary in the interest of navigation.

3rd. That the permission be granted subject to the conditions inserted in the agreement between the Government of the Province of Ontario and the applicants, and also subject to all the conditions and reservations expressed in the Act of Parliament passed at its last Session respecting the Ontario & Minnesota Power Company, Limited.

4th. That no work will be done under the permission to be given to the Company which will in any way interfere with the lock, canal or other works of

public nature already executed at Fort Francis by the Government of Canada, nor will any bridge or any other erection or construction of any nature whatsoever on, over or across said lock, canal or other works, be built, nor generally shall any use be made thereof, except by permission in writing given to that effect by the Minister of Public Works.

5th. That no work for the construction of any dyke or retaining wall provided on the plans submitted by the Company shall be commenced until the detailed plans thereof shall have been submitted and approved of by the Minister of Public Works.

6th. That should it appear necessary to the Minister of Public Works during the course of construction of the works hereunder to be authorized to cause said works to be interrupted for any changes, alterations, etc., as to him may appear advisable, then the Company will immediately cause the said works to be stopped forthwith, and will carry out any alterations or changes which may be ordered by the said Minister, and will conform in every way to the directions of the said Minister.

7th. That the Company shall provide in the execution of their works for the construction of the necessary fishway upon a plan and in a manner approved by the Department of Marine and Fisheries, the officers of that Department to have, for that purpose, the right of entering upon the work and seeing to the proper construction of the said fishway in accordance with whatever plans and specifications they may prepare.

The Committee submit the same for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "Y."

Extract from a Report of the Committee of the Honourable the Privy Council approved by the Governor-General on November 21, 1905.

The Committee on the recommendation of the Minister of Public Works, advise that, in view of the appointment of Mr. J. P. Mabee as one of the Justices of the High Court of Ontario, Mr. George C. Gibbons, K. C., be in his place appointed chairman of the Canadian section of the International Waterways Commission.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX "Z".

DETAIL REPORT OF THE SUB-COMMITTEE

MENTIONED AT PAGE 9.

INDEX OF MATTER CONTAINED IN THIS REPORT.

1. The River St. Clair.
2. The St. Clair Flats Canal and Lake St. Clair.
3. Lake Huron.
4. St. Marys River.
5. The Works of the Michigan Lake Superior Power Company.
6. The New West Neebish Channel.
7. The Works of the Chandler-Dunbar Water-Power Company and the Edison Sault Electric Company.
8. The revocable licenses granted by the United States War Department to the Chandler-Dunbar Water-Power Company.
9. The Works of the Consolidated Lake Superior Power Company operating on the Canadian side.
10. The Canadian Ship Canal.
11. The United States Ship Canal.
12. St. Marys River West of the Ship Canal, and White Fish Bay.
13. Lake Superior.
14. The Harbours of Port Arthur and Fort William.
15. The Water-Power of Kakabeca Falls.
16. The Harbour of Duluth.
17. The Proposed Works of the Minnesota Canal and Power Company.
18. The works of the Ontario and Minnesota Power Company at Koochiching Falls.
19. The Harbour of Chicago and the Chicago Drainage Canal.
20. Lake Michigan.
21. The Detroit River and Lime Kiln Crossing.

Detailed relation of an investigating trip made by a sub-committee of the International Waterways Commission, through the lakes and rivers connecting the same, including a visit to Sault Ste. Marie, Port Arthur, Fort William, Duluth, Chicago, Detroit, etc.

A committee, composed of Mr. James P. Mabee, chairman of the Canadian section, Mr. George Clinton, member of the American section, and the writer, secretary of the Canadian section, proceeded to Sault Ste. Marie on August 12, 1905, to investigate and report upon the uses of the waters of St. Marys River, as set forth in the Act of Congress, approved on April 13, 1902. In section 1, page 35, the duties of the International Waterways Commission, in regard to the matters at the Soo, are described as follows:—

"Subject to the express precedent conditions hereinafter mentioned, the " Michigan Lake Superior Power Company, of Sault Ste. Marie, Michigan, its " successors and assigns, after first obtaining consent of the Secretary of War " and the Chief of Engineers, and their approval of the said canal and remedial " works proposed, is hereby authorized to divert water from the St. Marys River " into its water-power canal now being constructed at Sault Ste. Marie, Michigan, " for water-power purposes, while and so long as such works and diversion of " water from said river shall not injuriously affect navigation therein, nor impair " or diminish the water levels or any natural increase thereof, either in Lake " Superior or in the United States ship canals and locks or the navigable channels, " locks, or ship canals connected therewith, whether natural or artificial, now " existing or which may hereafter be established or created by the United States

" for navigation purposes; and conditioned further, that said Company shall " establish, maintain and operate suitable and sufficient remedial and controlling " works in the rapids of said river, to the approval of the Secretary of War and " the Chief of Engineers; and said Company shall maintain and operate said " canal and works in accordance with any rules and regulations that may " hereafter be recommended by any international Commission and that shall " become operative. Whenever, in the judgment of the Secretary of War, " the operation of said canal and remedial and controlling works, or either of " them, either in themselves or in conjunction with any other canal or canals " in the United States or Canada which now, or hereafter may, exist, is injuri- " ously affecting water levels or the navigation of Lake Superior, the River St. " Marys, or other channels, locks or ship canals connected therewith as herein- " before provided, he shall impose upon said Company such rules and regulations " for the operation of said canal and remedial works, as may, in his opinion, " be necessary to prevent such injury. It shall become his duty, and he shall " have the authority to enter upon the property of said Company and to close " said canal in whole or in part to the extent necessary to maintain water levls " and to require said Company, at its own expense, to remove, add to or modify " said works or any part thereof to the extent necessary to maintain water " levels. Neither the Secretary of War nor the Chief of Engineers or any officer " or other person acting under direction of them, or either of them, shall be " in any way liable by reason of anything done in the execution of this provision.

"All remedies herein provided, however, shall be cumulative, and shall be " without prejudice to any other remedies either of the United States or of in- " dividuals for failure of said Company to maintain said levels for navigation " purposes, as herein provided.

"Nothing herein contained shall be held to affect any existing riparian or " other rights of any person or corporation, or the existing remedies therefor, " or any action at law or equity now pending. The right is hereby expressly " reserved to Congress to alter, amend or repeal the provisions contained in " this paragraph."

Mr. George Clinton went by way of Owen Sound, taking the Canadian Pacific Railway Company's Steamer, "Alberta," and arrived at Sault Ste. Marie, Michigan, on Sunday, the 13th of August.

Mr. James P. Mabee and the writer proceeded to Port Huron, Michigan, to investigate the conditions and the uses of the waters of St. Clair River and Lake St. Clair. The start was made from Port Huron, Michigan, the visitors proceeding east.

1. THE RIVER ST. CLAIR.

The St. Clair River has two different sections—the upper or undivided channel, and the lower portion. The undivided channel runs from Lake Huron to the head of Chenal Ecarte, a distance by steamer track of about 27 miles. At this point the River begins to divide into a number of channels. The one used by vessels is called the "South Channel," and its length, from the head of Chenal Ecarte to the south-west end of St. Clair Flats Canal, is about 13 miles, making the total length of the steamboat track, from Lake Huron to Lake St. Clair, about 40 miles.

The discharge through the upper or undivided portion of the river is 206,400 cubic feet per second when Lake Huron is at a stage of 581.40 feet above mean tide at New York. The increase of discharge per foot rise of the Lake is approximately, according to the engineers of the United States Army, 19,238 cubic feet per second. The river leaves Lake Huron with a velocity, opposite Fort Gratiot, of about 5 miles an hour, and enters Lake St. Clair, through the Canal, with a velocity of about 1¼ miles an hour. At intermediate points

the velocity varies irregularly between these limits. The banks of the river are clay and sand and usually quite steep; there are no rocks. There are two islands in the upper portion of the river: Stag Island and Woodtick Island.

Extensive dredging works have been performed by the Canadian Department of Public Works at Sarnia, in front of the Grand Trunk Railway wharf and the Lake Erie Ferry Slip. This has been done, as Sarnia is one of the principal harbours of the Grand Trunk Railway system and a stopping place for all Canadian passenger steamers passing through the St. Clair River. From the foot of George street, 3½ to 5 fathoms can be carried close to the shore in front of and below the Grand Trunk Depot and continuing down to Fromefield. A bay with shallow water extends from the foot of George street up to Point Edward. The anchorage at the head of St. Clair River below the rapids and abreast of Port Huron and Sarnia, is good in clay and gravel. In the rapids abreast of Point Edward it is rocky and bad. Good holding ground and some clay are to be found on the Canadian shore below the Grand Trunk elevator. Vessels generally anchor as close to each shore as safety permits, to leave the mid-channel clear for passing vessels. Fixed red range lights at Point Edward lead into the head of the St. Clair River from Lake Huron. The front light is on the beach 107 feet back from the water edge, and is visible 8 miles from all points of approach by water. The rear light is 579 feet south of the front light and visible 0¼ miles in the line of range. This range is followed by vessels until intersected by the Fort Gratiot range, on the United States side of the River.

The Port Huron rapids are about two miles above the town of the same name. The velocity of the current at this point is about 5 miles per hour. Two range lights on the American side, one mile below Fort Gratiot light, mark the sailing line through these rapids. There is good holding ground in clay or gravel bottom between Port Huron and Sarnia. The shoal at the mouth of Black River is marked by two buoys, a gas buoy about midway between the mouth of the River and the Canadian side, and a black spar buoy about 2,000 feet below the gas buoy. Between these buoys and the Canadian side there is a channel with a minimum width of 1,000 feet, and a depth of 21 feet at a stage of 581.5 feet above mean tide at New York. Between the buoys and the American side there is a depth of 14.5 feet at the above stage. This shoal is not quite stable, but is, on the contrary, increasing at a slow rate. It will be perceptible in two or three years. The channel in Black River has a depth of 15 feet up to the Grand Trunk Railway bridge. At Stag Island, the American channel has a depth of 21 feet, at a stage of 577.5 feet above mean tide at New York, and a minimum width of 900 feet. The Canadian channel has a minimum width of 550 feet and a depth of 28 feet at the above stage. A crib marks the lower entrance, and two range lights mark the upper entrance to this channel. At Corunna, opposite Stag Island channel, the Canadian channel is in the best order. There are range lights to guide through good water past the shoals at the head of Stag Island, and also past the shoals at the mouth of Talford Creek, which coming from the Indian Reservation, in the County of Lambton, Ontario, flows through Fromefield into the river, right opposite Marysville, Mich

Mooretown and Courtright, Ontario, which are just 1½ miles apart, were visited. The Lake Erie and Detroit River Railroad runs through the village of Mooretown. There are two wharfs with about 16 feet of water. Baby's Creek enters St. Clair River about one-third mile below the village. At Courtright, opposite the town of St. Clair, Michigan, there is good water along the wharfs with depths of 15 to 20 feet. At St. Clair, Michigan, the American channel has a minimum width of 800 feet and a depth of 21 feet at a stage of 577.0 feet above mean tide at New York. The Canadian channel has a depth of 26 feet at the above stage, with a minimum width of about 800 feet. Pine River empties into St. Clair River at St. Clair, Michigan. The original depth of that river over the bars was 5 to 8 feet. In 1897 the channel from the mouth

of the river to the shipyard was dredged to a depth of 14 feet, and in 1899 further dredging was done from the shipyard to Belknap's brickyard to a depth of 12 feet. The present available depth in these two channels is 13 and 11 feet respectively. The shoal or middle ground between the American and Canadian channels, between St. Clair, Michigan, and Courtright, Ontario, is marked by two gas buoys, one at the upper and one at the lower end.

At Sombra, Ontario, opposite Marine City, Michigan, there are two wharfs, one-third mile apart, extending about 200 yards in shallow water to 13 feet at the outer ends. At this particular point the channel on the American side is straighter and wider, and, therefore, more frequently used than the Canadian channel.

At Marine City, Michigan, the United States Government had dredged in 1897, at the mouth of the river to the first bridge, a channel 75 feet wide and 15 feet deep. In 1899 the channel was dredged to Broadway Bridge, to a width of 75 feet and a depth of 14 feet.

The vessel route at the mouth of St. Clair River is through the boundary line channel. The United States Government at this point has expended large sums of money in improving the channel, by driving piles and dredging between them. The greater portion of the improvements were made on the United States side of the line; but some of them were also made in Canadian waters, and inasmuch as the improved channel has completely obliterated the natural one, it follows that the improved channel, regardless of its alignment, is and has always been considered a common channel to Canada and to the United States. From the St. Clair Flats to Lake Huron, the route follows the boundary line, except when passing Woodtick Island and Stag Island, where it is in United States waters, yet, there is also a good channel in Canadian waters past the Islands just named.

A short distance from Marine City, Michigan, and Sombra, Ontario, is Woodtick Island, and a little farther east, the village of Port Lambton, Ontario.

Past the Chenal Ecarte there is the village of Algonac, Michigan, opposite Russel Island, at the head of the north channel. This north channel, opposite Pointe aux Trembles, Michigan, divides into two sections, one flowing through Chenal a Bout Rond into Goose Bay, the other flowing into Anchor Bay.

Opposite Grand Point, on Herson Island, in the south channel, the wreck of the steamship "Minnesota," which was burnt and sunk in October, 1903, close to Squirrel Island, had been removed during the latter part of 1904, and in 1905 it was ascertained that there is at this particular site a depth of 25 feet of water.

Between Walpole Island and Squirrel Island, there is the Canadian blind channel, which is used only by local and small craft, the average depth of the water in the channel not exceeding eight or nine feet.

On the left side of Squirrel Island there is also the Basset channel, which is scarcely used, except by small vessels

Between Herson Island and Dickenson's Island, lies the middle channel, which flows from the north channel into the Big Muscamoot Bay.

2. THE ST. CLAIR FLATS CANAL AND LAKE ST. CLAIR.

It will, therefore, be seen that originally the St. Clair River emptied into Lake St. Clair through several principal mouths or passes, the channels originally used being the north channel, the middle and the south passes. While each of these mouths or passes, constituting the delta known as the St. Clair Flats, afforded good water, especially the north, middle and south passes, yet all were obtsructed by sandy deposits forming bars in the Lake.

The improvement of a channel through these Flats has been the subject of discussion ever since the upper lake region had any commerce to speak of. A survey of the locality was made as early as 1841, and in 1852 the United States

Congress made an appropriation of $20,000 for plans and examinations, having in view the improvement of the south pass. But it was only in 1855 that the work of improving the navigation of the St. Clair River at the "Flats" was actually commenced under the direction of the Buffalo Board of Trade. The funds were obtained by subscriptions from the United States lake ports interested in the lake trade. The project was to dredge a channel 60 feet wide and 12 feet deep in the middle channel of the south pass, 1½ miles, west of the boundary line route now in use.

In 1857, under a United States appropriation of $50,000, the improvement was continued on the same line, and in 1858, the Canadian Government contributed towards the still further improvement on the same line, which sum was expended under the direction of the Buffalo Board of Trade, under arrangements approved by the Canadian Government. One of the conditions was that the money would not be spent until a channel of 125 feet wide and 12 feet deep had been first excavated by the United States, which was done. This channel was found to be difficult to maintain and navigate. The present St. Clair Flats Canal was projected in 1866 by Colonel Cram, of the United States Army Corps of Engineers.

The first plan provided for a straight channel, 13 feet deep and 30 feet wide, across the Flats east of the mouth of the old channel. This was completed in 1871. The canal was protected on either side by a dike 7,227 feet long, making an aggregate of 14,452 feet of timber cribs resting upon piles driven into the original bottom of the shoal. A lighthouse was installed at each end of the eastern pier.

In 1873 the channel was deepened to 16 feet by dredging for a width of 100 feet on either side of the axis of the canal, or a width of 200 feet in all. This was done on account of the fact that the single row of sheet piles intended by the project of Colonel Cram, in 1866, for a depth of 13 feet, had not sufficient penetration to admit dredging to 16 feet for the full width of the canal.

In 1886, another plan of improving the channel was adopted. It consisted in driving a double row of sheet piling to a depth of 26 feet along the channel face of each dike, dredging the area between the dikes to a depth of 20 feet. The channel above and below the canal was to be dredged to the same depth in the River and in the Lake. But, subsequently, it was considered sufficient to obtain a depth of 18 feet. This work was completed in June, 1892. The pile revetment along the channel face of each dike was then finished, and a channel of 18 feet deep from about 900 feet above the canal in St. Clair River to about 3,300 feet below the canal was available. This depth of 18 feet was obtained for the full width of the canal, viz.: 300 feet or more for its full length. At the lower end of the canal, the 18 feet deep channel gradually widened to a width of 380 feet, at a distance of 300 feet below the canal. From that point to a farther distance of 3,300 feet below the canal, the width of the channel had a uniform width of 380 feet.

In 1891, the late Colonel O. E. Poe, of the Corps of Engineers of the United States Army, submitted an estimate for a channel of 20 feet deep, extending from a point about 1,500 feet above the canal, then through the canal and thence to about 10,000 feet into Lake St. Clair, with a width of 600 feet at its lower end. This plan was adopted and embodied in an Act of Congress of July 13, 1892.

The work was commenced in April, 1893, and completed in December, 1894, at a cost of $107,024. At the time, the dikes of St. Clair Flats Canal were 7,221 feet long each, and the channel faces were riveted with double rows of sheet piling 26 feet deep, and the backs of the dikes were protected against the action of the waves by shorter sheeting. The canal had a clear width of 295 feet between the dikes, and a depth of 20 feet. The channel had also a depth of 20 feet from deep water in St. Clair River to deep water in Lake St. Clair, with a width above the canal of 650 feet, thence gradually narrowing

to the canal; thence having the full width of the canal over its entire length; thence gradually widening to a width of 800 feet at deep water in Lake Erie.

The cost of the improvement of the St. Clair Flats Canal, from the beginning in 1852 to 1896, is $809,859.06, divided as follows:—

Cost of North Channel of South Pass, 1852 to 1858	$ 64,829 01
Cost of South Channel of South Pass, 1858 to 1895, for completing project of 1868, Channel 13 feet deep, single sheet piling	461,090 01
For completing project of 1892, including repairs to July 1, 1881	115,933 53
For completing project of 1886, Channel 18 feet deep, second row sheet piling	168,007 51
Total cost	$809,859 06

In 1902, the United States Congress authorized the construction of a second channel, similar to the one already in use and parallel to it, but separated therefrom by a dike of about 100 feet wide, so as to provide a channel of 20 feet minimum depth and about 300 feet wide, from Lake St. Clair up into St. Clair River, for ascending boats, and a similar channel for descending vessels.

The work was started in 1904 and was in way of being completed during the summer of 1905. The appropriation made by the United States Congress for this improvement is $330,000, making total appropriation for the St. Clair Flats Canal, from 1866 to 1903, $1,094,810. With the amounts spent in 1852 and 1856, by the United States and the Canadian Governments, it makes a total expenditure of $1,149,810, incurred in this undertaking.

The St. Clair Flats Ship Canals, en resume, comprise the dikes, the water between the dikes, and the improved channels of approach, both above and below the dikes. The improved approach above the dikes is 800 feet long; that below the dikes 11,000 feet long, and the dikes themselves are 7,221 feet long, making the total length of canal of about 19,000 feet.

The canal is marked by two lighthouses and two gas buoys. The lighthouses show the range of both the upper and lower approaches. The gas buoys are about one mile below the dikes and mark the east and west sides of the lower approach.

The width between the dikes and the width of the upper approach is 292 feet. The width of the lower approach is 400 feet. The depth at a stage of 575.0 feet above mean tide at New York is 24 feet. During the lowest water of the season of 1904, a draught of 19 feet could be carried through this channel.

Some years ago there was a dispute as to whether the St. Clair Flats Canal was in Canadian waters or in the waters under the jurisdiction of the United States Government. Investigation and reports were made on this subject by the Corps of Engineers of the United States Army, and by engineers engaged by the Canadian Government. The reports did not agree. But there is no doubt that part of the St. Clair Flats Canal is in Canadian territory, and that this improved water communication now in general use across the St. Clair Flats, is more or less on the boundary line between Canada and the United States. As such, this water communication is common to the trade of the lakes of both countries. Article XXVII. of the Treaty of Washington, 1871, states that "the subjects of Her Britannic Majesty shall enjoy the use of the " St. Clair Flats Canal on terms of equality with the inhabitants of the United " States."

From the southwest end of the St. Clair Flats Canal to Windmill Point lighthouse in Detroit River, the steamer track has a length of 17 miles. The area of the water surface of Lake St. Clair is 4,450 square miles. According to the United States Weather Bureau, the average annual rainfall in Lake St. Clair is 36 inches. The average date of opening of navigation at St. Clair Flats light-

house is April 4th, and the average date of closing of navigation at the same place is December 15th.

After a short visit to Detroit and Windsor, the members of the sub-committee returned to Port Huron by the Detroit River and Port Huron Electric Railway.

3. LAKE HURON.

The members of the sub-committee left Monday afternoon, the 14th of August, on the steamship "Monarch," of the Northwestern Navigation Company, for Sault Ste. Marie, crossing Lake Huron from Sarnia to Detour in little less than twenty-two hours. The distance between Point Edward, Ontario, opposite Fort Gratiot, Michigan, to Detour passage is 220 miles. The steamer track from Fort Gratiot, Michigan, to the Straits of Mackinac is 243 miles. From Point Harris to Drummond Island, in a right line, the distance is 206 miles. The maximum depth recorded is 750 feet. Lake Huron has an area of water surface of 23,200 square miles. Its drained area is 52,100 square miles, making a total area of its basin of 75,300 square miles. The average annual rainfall in Lake Huron is 32 inches. Its mean surface above mean tide at New York city, during 45 years, from 1860 to 1904, is 581.40 feet. The standard high water, established in 1838, above the mean tide at New York city, is 584.69 feet, and the standard low water above mean tide at New York city, said standard being adopted for new charts, is 578.51 feet. The mean surface of Lake Huron below the mean surface of Lake Superior is 20.89 feet, and its mean surface above mean surface of Lake Erie is 8.79 feet, the discharge of St. Clair River at the mean stage of Lake Huron (581.40 feet) is 206,400 cubic feet per second. The increase in discharge per foot rise of the Lake is 19,238 cubic feet per second. The average date of opening of navigation at Sarnia, or Point Edward, is the 6th of April, and the average date of closing of navigation at the same point is 19th December.

Around Lake Huron on the Canadian side, there are storm-warning stations at the following places: Amherstburg, Bayfield, Collingwood, Depot Harbour, Goderich, Kincardine, Midland, Owen Sound, Parry Sound, Presque Isle, Sarnia, Saugeen and Tobermory. There are also life-saving stations at Collingwood and Goderich. On the American shore we find life-saving stations at Bois Blanc Island, Grindstone City, Hammond Bay, Lakeview Beach, Middle Island, Ottawa Point, Pointe aux Barques, Sand Beach, Sturgeon Point, Tawas Point and Thunder Bay Island.

The United States Weather Bureau has established storm-warning display stations at the following places, on the American coast of Lake Huron: Alpena, Bay City, Cheboygan, Detour (at the outlet of St. Marys River), Detroit, East Tawas, Harbour Beach, Lakeview Beach, Mackinac Island, Mackinaw, Middle Island, Oscoda, Ottawa Point, Pointe aux Barques, Port Huron, Presque Isle, Tawas Point and Thunder Bay Island.

4. ST. MARYS RIVER.

The vessels enter St. Marys River from Lake Huron, at Detour Passage at a point 1½ miles from the lighthouse of Point Detour. They thence proceed north in a straight line for a distance of three-quarters of a mile up to Frying Pan lighthouse. At this point they turn a little to the left and proceed again in a straight line for a distance of 1½ miles to Pipe Island lighthouse, which is situated at the south-eastern end of Potagannissing Bay, where they turn farther to the left. From Sweet's Point the vessels again turn a little farther to the left and proceed in a straight line for a distance of 2⅞ miles to Sweet's Point light. Off Sweet's Island, from Sweet's Point light, they proceed for a distance of 4½ miles, passing at a short distance off Lime Island up to a point opposite Raber Point, Michigan, thence turning straight north and passing to the right of Round

Island, opposite Hay Point, Ontario, and Pointe aux Frenes, Michigan, covering a distance of four miles.

From Hay Point the vessels enter the Mud Lake channel. After a distance of 6¾ miles they reach the Mud Lake beacon, opposite Winter Point on the east end of Neebish Island, thence for a distance of four miles they proceed north, up to the Sailors' Encampment channel, thence they reach Little Mud Lake channel the Middle Neebish channel and the Hay Lake channel, passing to the left of Middle Hay Lake front light and to the right of Frechette Point, thence through the Little Rapids channel up to the Soo.

Navigation around the rapids of Sault Ste. Marie is provided for by two canals; one on the United States side and one on the Canadian side. Between the canal and the lighthouse at the entrance of Hay Lake channel, the United States Government, during the season of 1905, has removed the Bayfield and other adjacent shoals to the extent of securing a channel of 21 feet deep and 1,500 feet wide. At the head of Sugar Island, about two miles below the canal locks at Sault Ste. Marie, the channel divides in two. The old line of travel, known as the Lake George Route, passes to the northward and eastward of Sugar Island through Lake George and East Neebish. The new line, known as the Hay Lake Route, passes to the west of Sugar Island through Hay Lake and Middle Neebish. The two routes reunite at the head of Little Mud Lake. The distance from Point Iroquois to Detour by the Hay Lake Route is 64 miles and by the Lake George Route 75 miles. The least width of the channel by way of Hay Lake is 300 feet, limited to a total distance of 8 miles. The general width of the channel is 600 feet or more, and the least depth at the present prevailing stage of water is about 19 feet. The least width of the channel by way of Lake George is 150 feet, and the least depth about 15 feet. Both roadsteads are well defined by numerous buoys and by the mid-channel ranges.

There is another important channel known as the St. Joseph channel, with least depth of 13 feet, which leaves the Lake George and Hay Lake channel near their junction at the south end of Sugar Island, and passing to the northward and eastward of St. Joseph Island, leads into Manitoulin Bay or north channel, thence to Georgian Bay by way of Clapperton Main Passage and Little Current, or directly into Lake Huron through channels on the east and west sides of Cockburn Island, called, respectively, the Nississagi Strait and False Detour channel. These channels are all in Canadian waters.

From Detour Passage to Sault Ste. Marie, parts of Lake George channel from Little Rapids to the foot of Sugar Island are in Canadian waters. The upper part of the channel in Little Mud Lake and east channel at Sailors' Encampment, and part of the angle of the west channel, are also in Canadian waters. The United States Engineers in charge of the Public Works Department of the War Office at Sault Ste. Marie, claim that the above improvements were made with the tacit consent of the Canadian Government. Lake George channel was made from 1869 to 1882. Little Mud Lake was dredged from 1892 to 1894 at a cost of $23,000. Sailors' Encampment channel was commenced in 1882 and finished in 1895 at a cost of $23,000. Further improvements in that channel were made from 1903 to 1905 at a cost of $11,000. Further improvements at the head of Sailors' Encampment were being made by the removal of boulders, sand and rock, from an area of 1,400 feet long and 200 feet wide on the west side of the channel just above Johnson's Point, and on the east side of the channel by the removal of sunken cribs and boulder ridges covering an area of 1,800 square yards. This important work has been proceeded with during the whole summer. At the foot of Little Mud Lake the angle in the channel was widened last year on the east side by the removal of 49,033 cubic yards of sand and boulders from an area of about 15,700 square yards, and on the west by the removal of 3,941 cubic yards from an area of 2,400 square yards.

The improvement of Hay Lake and Neebish channel was commenced in

1893 and opened to navigation in 1894. The result was a new line of travel through St. Marys River, 11 miles shorter and four feet deeper than that previously available, and one which can be navigated at night with a reasonable degree of safety. In 1902 a project was adopted providing for a channel of 21 feet available depth at low water and 1,000 feet width from St. Marys Fall Canal to the foot of Hay Lake, thence deepening to 21 feet the present 300 foot channel to Mud Lake, via Middle Neebish, and opening a new 300 foot channel to Mud Lake, via West Neebish, thus providing separate channels through this stretch for up and down bound boats.

In 1904 the United States Government, in Hay Lake channel, spent $2,738,081.39, and during the present season of navigation a further expenditure of $1,221,033.61 was incurred. Below the islands, at Little Rapids, the channel has been improved for a distance of 10,200 feet, by widening on the east side 150 feet, to a depth of 21 feet. The channel through the Little Rapids section of the upper entrance to Hay Lake is, therefore, at present 600 feet wide. The deepening to 21 feet through Little Rapids was completed in 1904, from the head of the islands to Frechette Point. The deepening from Frechette Point to Six Mile Point was in progress during the summer of 1905.

The deepening of Nine Mile Point shoal to 22 feet was commenced in 1904 and was finished in August, 1905.

A very large boulder shoal with at least a depth of 12 feet over it, called Crab Island shoal, lies in 23 feet of water near the western end of the shoal, about half a mile south-west of Barbed Point and about 1,000 feet east of the usual course of vessels through Detour Passage. There are a number of boulders in the vicinity with less than 20 feet over them. A red spar buoy marks the most westerly boulders of Crab Island. A derrick-boat and diving outfit have been employed during midsummer of 1905 in removing the boulders from the west end of this shoal.

The sub-committee arrived at Sault Ste. Marie, Ontario, on Tuesday afternoon, the 15th of August. They were met at the Canadian Government dock by Mr. George Clinton and Mr. Lochlan P. Morrison, junior assistant engineer of the River Improvements Office, who, in the absence of Lieut.-Col. Chas. E. L. B. Davis, of the Corps of Engineers of the United States Army, in charge of the district, had been directed to receive the committee officially. The members of the committee immediately embarked on the United States Government Steamer "Alfred Noble," and crossing the River they proceeded at once to visit the power canal and the plants of the Michigan Lake Superior Power Company, being accompanied by Mr. Louis H. Davis, chief engineer of the Consolidated Lake Superior Power Company.

5. THE MICHIGAN LAKE SUPERIOR POWER COMPANY

Was incorporated in virtue of the Act No. 39 of the Public Acts of the State of Michigan, 1883. This Act, with the amendments thereto, is the legal authority for the Michigan Lake Superior Power Company to do business in the State of Michigan. The Congress of the United States in 1902, by an Act approved on the 13th June, making appropriation for the construction, repairs and preservation of certain public works on rivers and harbours and for other purposes, authorized the Michigan Lake Superior Power Company to build its canal on the American side, and after the approval of this Act, the United States War Department granted the Company the following permit:—

"WHEREAS, By the River and Harbour Act, approved June 13, 1902, it " is provided (32 Stats., 361) that, subject to the conditions therein mentioned:

"The Michigan Lake Superior Power Company of Sault Ste. Marie, Michigan, " its successors and assigns, after first obtaining consent of the Secretary of War " and the Chief of Engineers and their approval of said canal and remedial

" works proposed, is hereby authorized to divert water from the St. Marys " River into its water-power canal, now being constructed at Sault Ste. Marie, " Michigan, for water-power purposes, while and so long as said works do not " affect navigation therein, nor impair or diminish the water levels or any natural " increase thereof, either in Lake Superior, or in the United States ship canal " and locks, or the navigable channels, locks, or ship canals connected there- " with, whether natural or artificial, now existing or which may hereafter be " established or created by the United States for navigation purposes:

"AND WHEREAS, The said Michigan Lake Superior Power Company " has submitted for the approval of the Secretary of War and Chief of Engineers " plans of its water-power canal and remedial works for the diversion of the " water from the St. Marys River, authorized by said Act, and has applied for " consent of the Secretary of War and Chief of Engineers to such diversions:

"AND WHEREAS, The Chief of Engineers has approved the said plans, " and has given his consent to such diversion, subject to the acceptance by said " Company of the conditions hereinafter specified:

"NOW, THEREFORE, This is to certify that the Secretary of War hereby " approves the said plans, which are hereto attached, and hereby gives his " consent to the diversion of water from the St. Marys River, as authorized by " said Act, subject to the acceptance by said Company on the following con- " ditions:

"1. That the regulating works, including escape valves at power house, " controlling works, and remedial works, shall be operated under the inspection " of the engineer officer in charge of the St. Marys Falls Canal, who shall have " access to them at all times.

"2. That when the mean level of Lake Superior at the canal for any cal- " endar month falls below 601.5 feet above mean tide at New York, according to " the levels of the United States Survey Office, the flow through the canal shall " be reduced, the amount of reduction increasing as the monthly mean level " falls until it reaches 601.0, when all flow shall be stopped until the monthly " level again exceeds 601.0, all without claims against the United States, or " against any officer thereof.

"3. That in addition to the requirements of condition 2 (*supra*), all flow " shall likewise be stopped, without claim against the United States, or against " any officer thereof, should the monthly mean level of the Lake remain below " 601.5 for a period of six consecutive calendar months, and shall not be resumed " until the monthly mean level shall exceed 601.5.

"4. That when the monthly mean level raises above 603.0, the flow through " the canal and the remedial works shall be increased to their maximum capacity, " and shall so continue until the monthly mean level shall be less than 603.0 " without claim against the United States, or against any officer thereof.

"5. That should the monthly mean level of the Lake remain above 603.0 " for a period of six consecutive calendar months, said Company shall alter its " works at its own expense as soon as practicable, so as to allow more flow.

"6. That the United States shall have the right to assume entire control " of the flow of the water through the canal and remedial works in cases of " accidents or emergencies temporarily affecting navigation to the United States " ship canal.

"7. That should cross currents, detrimental to navigation, be created by " the intake or by the outflow of the canal, said Company shall construct such " booms, training walls, or other works, as may be necessary to remedy the evil.

"8. That said Company, in its arrangement and construction of remedial " works, shall leave a suitable channel and water flow for the passage of logs " over and through St. Marys Falls.

"9. That these limitations are in addition to the special limitations of the

" Act of June 13, 1905, regarding riparian or other rights of any person or cor-
" poration and the remedies therefor.

"10. That the elevations above mean tide at New York, above specified,
" are those established and in use at this date by the Office of the Survey of the
" Northern and Northwestern Lakes, commonly known as the Lake Survey
" Office at Detroit, Michigan.

"11. Finally, the object and claim of the foregoing paragraphs being to
" hold the waters of the Lake and River under the absolute control of the United
" States in the interest of navigation, it is expressly understood that said Com-
" pany shall not be entitled to damages should the Government at any time or
" for any cause exercise its right to control and suspend the flow of water through
" the power canal, in the interest of navigation.

"Witness my hand, this 12th day of December, 1902.

"(Signed) ELIHU ROOT,
"*Secretary of War.*

"THIS INSTRUMENT is also executed by the Michigan Lake Superior
" Power Company by Francis H. Clergue, its President. thereunto lawfully
" authorized, this ninth day of December, 1902, in testimony of the acceptance
" by said Company of the foregoing conditions.

" THE MICHIGAN LAKE SUPERIOR POWER COMPANY.
"By Francis H. Clergue,
"*President.*

" Attest:
" H. Von Schon,
" F. T. Trempe.
" (Seal)
" Office, Chief of Engineers, December 2, 1902
28614
137
" War Department."

The plant of the Michigan Lake Superior Power Company has been designed to devolop a portion of the power of the St. Marys Rapids.

To accomplish this end, water is diverted from the St. Marys River above the rapids into a canal running through the city of Sault Ste. Marie to a power house situated near the shore of St. Marys River, about 4,400 feet below the rapids, and is there returned to the river, after passing through turbines, which, together with electric generators, convert the hydraulic power into mechanical and electrical power. The plant is designed to develop about 45,000 horse-power at the turbine shafts, equivalent to about 42,000 electric horse-power at the switchboard in the power-house. Of this portion about 8,000 electric horse-power is now being utilized by the Union Carbide Company and Tran-Sault Ste. Marie Traction Company

The plant consists of the canal, head gates, power house and power house equipment.

The canal consists of the intake, canal proper, fore-bay and tail-race. Its total length from the harbour line above the rapids to harbour line below the rapids is about 12,000 feet.

The head of the intake is located along the established United States harbour line, immediately west of the entrance to the United States ship canal, and its width along the harbour line is 990 feet, and its depth is 18 feet, so that the velocity of the water at the entrance will be, when the canal is operating at its

full capacity, about 1⅔ cubic feet per second. The intake as it continues easterly, gradually narrows to a width of 204 feet, and deepens to a depth of 23 feet, below mean still water level at a point about 1,500 feet from the centre line of the entrance, thence continuous at the width given for a distance of about 900 feet to the head-gates. The sides of the intake are retained by rock-filled timber cribs with slopes of riprap paving above the water line.

The canal proper begins at the head gates, and for about 2,700 feet was excavated largely through sandstone bedrock to a width of about 200 feet, with substantially vertical walls. Where not excavated in rock the earth is retained by masonry retaining walls. Continuing east from the rock section, the canal extends for about 3,000 feet with rock bottom and timber-lined sides, and thence for another 3,000 feet through clay and sand, the bottom and sides both being timber-lined below the water line. The slopes above the water line are paved with rip rap. At the end of the clay section, the canal widens into a forebay, which delivers the water to the turbine chambers or penstocks in the power house. The water, after passing through the turbines into the tail pits, flows into the tail-race, the width of which is the full length of the power house, 1,340 feet, and thence is discharged into the River with a velocity of less than 1½ feet per second.

In the forebay are located steel racks which collect floating wood, ice and other objects, and these divert such material through a wooden channel into a spillway, passing through the power house to the tail-race.

The power house is 1,340 feet long by 80 feet wide. Its foundation is a grillage of timber filled with concrete, resting on piles driven to bed rock. The substructure is divided by concrete walls into 81 tail pits, each one of 80 of which receives water from a turbine chamber or penstock immediately above it. The upstream ends of these tail pits are closed by segmental concrete arches and the roofs of the tail pits are monolithic concrete arches, which form the penstock and dynamo room floors. The superstructure has stone and concrete masonry walls with floors of steel and concrete, supported by steel columns, and is covered by a steel roof. The forebay side consists of 80 penstocks and one spilling way opening. These penstocks contain the turbines. They are 16⅓ feet, centre to centre, 15 feet in width clear, and are closed on the downstream side by semi-cylindrical steel bulkheads, attached to steel and concrete partition walls. The penstocks take up about one-half of the first floor space. The first floor of the river side of the power house, which is just north of the penstocks, forms the dynamo room. The second and third floors in the power house are arranged for the location of machinery for manufacturing plants which now use, or may use, power generated by the plant.

At the west end of the power house is located a boiler plant of about 250 horse power capacity with centrifugal pumps for pumping, in the event of necessary repairs to the canal or power house, from the canal such water as will not drain by gravity into the tail race.

The equipment of the power house will be 80 penstock units, each consisting of two pairs of 33-inch horizontal turbines mounted on one shaft, which extends through the steel bulkheads into the dynamo room. To each turbine shaft there will be directly connected an electric generator of 375 to 400 K. W. capacity. There are at present installed 42 turbine units and 32 electric generators, 23 of the latter belonging to the Union Carbide Company, and nine to the Michigan Lake Superior Power Company. The capacity of each generator belonging to the Union Carbide Company is 375 K. W., and of each of the generators belonging to the Power Company 400 K. W.

The delivery of water into the power canal is controlled by head gates, located about 2,400 feet east of the intake entrance, at the beginning of the rock section of the canal. They consist of four Stonie steel sluice gates, operated between masonry piers by hand winches and suitable trains of gear. The piers,

gate sills and abutments are all founded on rock. The gates are counter-balanced for ease in operating. The piers between the gates are spanned by steel and concrete arches, making a bridge with ample strength for either railroad or street purposes.

The mean difference in height between the upper and lower levels of St. Marys River is about 19.3 feet. It is estimated that when the canal is operating to its full capacity the loss in frictional, and other resistances to the flow of the water will be about 3 feet, making the mean effective head at the power house about 16 feet or a little over.

The total cost of the Michigan Lake Superior Power Company's plant to date is $6,500,000.

6. THE WEST NEEBISH CHANNEL.

On Wednesday, the 15th, the sub-committee embarked again on board the steamship "Alfred Noble," kindly placed at their disposal by the office of the Corps of Engineers of the United States Army at the Soo, to visit the new double track channel which is now being constructed. This will be another road through Hay Lake and the West Neebish which will be completed in 1908.

Contract has been let for the construction of a channel 300 feet wide and 22 feet deep, for a distance of 13,300 feet through the rapids, with a stone retaining wall along each edge of the rock cut. About 6,000 lineal feet of the cut was to be enclosed by cofferdams and the included portion of the channel is excavated in the dry. These intermediate dams shut off all flow of water through the West Neebish. The upper and lower main dams were partially constructed by a dredge casting over excavated material consisting of gravel, sand or clay, and finished by depositing stones and gravel until the height of the dam was about six feet above the water surface. The construction of these two cofferdams was commenced in August, 1904, and finished in August, 1905.

The contractors, at the close of the year 1904, had also made good progress in other preliminary works in connection with the construction of this 300 foot channel through the West Neebish rapids, including roadways, framing of cable towers for the Telferage system, boarding houses, store, dock and assembling of plant.

By the construction of the two temporary cofferdams, the water was raised ¾inches in pool above the upper dam. The contractors are employing, for the excavation of this solid rock bed, two air compressors of 750 and 250 horse-power respectively, and of 75 pounds pressure. The sides are first being channeled and a vertical retaining wall is being built along each side of the channel to a height of six feet above low water. Drilling is done with 16 drills, and 50 per cent. dynamite is used for blasting. The material is removed by four cableways, two of them 800 feet between the towers, and two of them 1,100 feet between the towers. The towers are 90 feet high. The skips used are steel, with dimensions of 8x8x2½ feet. There is a steel shovel of 76 tons weight, which is used in loading skips, and two more shovels of 120 tons each are to be added next spring. The average working force is 150 labourers and 49 skilled mechanics and foremen. There were 1,586,000 cubic yards of rock to be excavated above 22 feet grade at the rate of $1.36 per cubic yard, and 95,000 cubic yards between 22 and 23 feet grades are to be excavated at 68 cents per cubic yard. As above stated, this gigantic work was begun in May, 1904, and will probably be completed before the opening of navigation in the spring of 1908. That would make what we may call a double track channel of 300 feet from Sault Ste. Marie to Detour Point.

The mean level of Lake Superior for the years 1860 to 1904, both inclusive, is 602.29 feet above mean tide at New York. The discharge of the St. Marys River for this elevation of the lake, as measured in 1902, is 75,000 cubic feet per second. The increase in discharge per foot rise of lake is approximately 15,500 cubic feet per second.

The United States engineer of the War Department in charge at Sault Ste. Marie informed the sub-committee that they are now preparing a plan for a 25 foot channel, thus deepening the middle and west channels an additional four feet without further widening. The material which has been excavated from the St. Marys River is silt, sand, clay, gravel, stones, boulders, hard pan, sandstones and limestone bed rock. The dredging operations are all conducted under contracts. The inspectors of dredging are paid by the United States Government at the rate of $85.00 per month and their board while employed during the working season. The total amount spent up to the present time by the United States Government in improving St. Marys River is as follows: canal, $8,000,000, river channel, $4,000,000; making a total of $12,000,000.

Returning to the Soo in the afternoon, the Committee visited the plants and works of the Chandler-Dunbar Water-Power Company and those of the Edison Sault Electric Company.

7. THE CHANDLER-DUNBAR WATER-POWER COMPANY, AND THE EDISON SAULT ELECTRIC COMPANY.

The Chandler-Dunbar Water-Power Company was incorporated in virtue of the same Act which gave legal existence to the Michigan Lake Superior Power Company, viz.: Act, No. 39 of the Public Acts of the State of Michigan, to authorize the formation of a corporation for the purpose of excavating, constructing, and maintaining water courses with water-power appurtenant thereto, for accumulating, storing, conducting, selling, furnishing and supplying, upon an agreed rental, water and water-power for mining, milling, manufacturing, domestic, municipal, and agricultural purposes.

The Chandler-Dunbar Water–Power Company claim to have been for many years past, the owners of the south bank and shore of the St. Marys River at the rapids, in the city of Sault Ste. Marie, the County of Chippawa, in the State of Michigan, from a point 700 feet above and west of, to a point of 2,300 feet below and east of the south end of the International Bridge, across St. Marys River, and also of the bed of the St. Marys over and against said rapids extending from the south bank and shore of said river northerly to the international boundary line between the United States on one side and the Dominion of Canada on the other side; and extending from above the head of the falls in the St. Marys River nearly to the foot of the said Falls.

The volume of the flow in St. Marys River at the ordinary low water stage, at and past the land of the Chandler-Dunbar Water-Power Company, over and above the amount required for navigation, is, according to the engineer of the Company, about 3,600,000 cubic feet per minute, or 60,000 cubic feet per second. At higher stages the flow is naturally much more. There is, upon the lands of the Company, a fall of the water to the extent of about 12 feet, according to an estimate of the engineer of the Company.

The Chandler-Dunbar Water-Power Company claim that at least half of this flow of water is appurtenant to the American shore and appurtenant to the lands of the Company. It is, therefore, the intention of the Company and its lessee, the Edison Sault Electric Company, to take and use, where it passes the lands of the Company, for the production of available power all of such flow appurtenant to the said lands, excepting only such amount as may be required for navigation. The character of the proposed works is in each case a dam containing penstocks and wheels; the dam is designed to raise the level of water in the rapids, above the dam, to the level of Lake Superior, or as near as may be. The penstocks and wheels to have sufficient capacity to discharge and utilize all the flow of the rapids of the St. Marys River south of the international boundary. The penstocks will be provided with waste weirs for use when the wheels are to be stopped. The tail races will be excavated to as low a level as circumstances will permit in order that the entire available head may be utilized.

The Chandler-Dunbar Water-Power Company are building their present works in virtue of certain permits which have been granted them by the United States War Office, and they also claim the ownership of what is generally called Island No. 1 and Island No. 2, in virtue of Letters Patent, granted them on the 15th of December, 1883. Said Letters Patent read as follows:—

"UNITED STATES OF AMERICA:

"To all to whom these presents shall come, Greeting:

" Special Act of Congress
" April 11, 1860. } WHEREAS, In pursuance of the Special Act " of Congress, approved April 11, 1860, entitled, 'An Act for the relief of the legal " 'representatives of Charles Porterfield, deceased,' there has been deposited " in the General Land Office, Warrant No. 123, for 40 acres in favor of William " Kinney and Thomas J. Michie, as executors of Robert Porterfield, deceased, " or their assignees, should any assignment from them as such executors, under " the provisions of the will of Robert Porterfield as directed by the Act in ques- " tion, be duly indorsed thereon, and, whereas there is indorsed on said warrant " an assignment duly executed in favor of William Chandler, with evidence " that the same has been duly located upon all that certain lot or parcel of land, " being a portion of section numbered six in township numbered forty-seven, " north of range numbered one, east of Michigan Meridian in the State of Mich- " igan, designated upon the official plan of the survey of the village of Sault Ste. " Marie, made by United States Deputy Surveyor Thomas Whelpley in 1854 " and 1855, under and by virtue of an Act of Congress, approved September 26, " 1850, entitled, 'An Act providing for the examination and settlement of " 'claims for land at the Sault Ste. Marie, in Michigan,' which survey was approved " by Leander Chapman, United States Surveyor-General for the State of Mich- " igan, September 4, 1855, and is now on file in the office of the Commissioner " of the General Land Office at Washington, D. C., as 'part of the Indian Reser- " 'vation,' said tracts being bounded by the River St. Mary on the east, north " and west, and by the St. Marys Falls Canal and Portage street extended on " the south, the same being more particularly described by courses and distance " as follows: Beginning at the intersection of the Principal Meridian of Michigan " with River St. Mary, being 90 links north of St. Mary's Canal, and being the " north-west corner of north-east part of Claim No. 3; thence north 71 degrees, " 39 feet east 4.00 chains; thence north 4 degrees, 37 feet west 3.65 chains to " the north-west corner of said tract, being the initial point of the survey of " said tract; thence south 4 degrees, 37 feet east 1.00 chains; thence south " 77 degrees, 10 feet west 15.00 chains; thence north 85 degrees, 23 feet east " 18.89 chains; thence north 18 degrees, 39 feet west 2.06 chains; thence north " 80 degrees, 40 feet west 1.66 chains; thence south 88 degrees, 15 feet west " 4.01 chains; thence north 84 degrees, 41 feet west 4.06 chains; thence south " 85 degrees, 23 feet west 3.00 chains; thence north 89 degrees, 54 feet west " 4.01 chains; thence south 79 degrees, 57 feet west 4.02 chains; thence north " 69 degrees, 19 feet west 4.42 chains; thence south 87 degrees, 56 feet west 8.09 " chains, to the initial point of survey; being the north-west corner of said tract " containing 9.10¾ acres of land, more or less, in the district of land subject to " sale at Marquette, Michigan, according to the Official Plat of the survey of " the said land returned to the General Land Office by the Surveyor-General. " Now know ye, that there is, therefore, granted by the United States unto the " said William Chandler the tract of the land above described, to have and to " hold the said tract of land with the appurtenance thereof, unto the said William " Chandler and to his heirs and assigns forever.

"In testimony whereof, I, Chester A. Arthur, President of the United

" States of America, have caused these Letters to be made Patent, and the seal
" of the General Land Office to be hereunto affixed.

"Given under my hand at the City of Washington, the fifteenth day of
" December, in the year of our Lord, one thousand eight hundred and eighty-
" three, and of the independence of the United States the one hundred and
" eighth.

" (Seal)

" United States General Land Office.

" By the President, CHESTER A. ARTHUR.
" By WM H. CROOK, *Secretary.*

"S. W. CLARK, Recorder of the General Land Office.

"Recorded, Vol. 6, Pages 1, 2 and 3."

8. THE REVOCABLE LICENSES GRANTED BY THE UNITED STATES WAR DEPARTMENT TO THE CHANDLER-DUNBAR WATER-POWER COMPANY OR TO ITS LESSEE, THE EDISON SAULT ELECTRIC COMPANY.

They are seven in number and read as follows by order of dates:

Revocable License No. 1 (March 14, 1889).

The Edison Sault Light and Power Company, of Sault Ste. Marie, a corporation existing under the laws of the State of Michigan, is hereby granted a license, revocable at will by the Secretary of War, to erect and maintain a dam on the rapids of the St. Marys River, between the mainland and Island No. 3, and within the limits of the lines marked "Proposed Embankment Dam," on the map hereto attached and made a part of this instrument, upon the following provisions and conditions:

1. That said dam shall be so constructed as not to interfere with private rights or public interests and improvements.

2. That the Engineer Officers of the United States Army, in charge of the district within which the dam is to be constructed may supervise its construction as far as may be necessary, to secure the compliance with the conditions herein obtained.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is this date, shall be repaid by said Edison Sault Light and Power Company on demand.

Witness my hand this fourteenth day of March, 1889.

(Signed) REDFIELD PROCTER,
Secretary of War.

This license, with the terms, provisions and conditions set out therein, is hereby accepted this fifth day of March, 1889.

THE EDISON SAULT LIGHT AND POWER COMPANY,
MR. C. E. AINSWORTH, *President.*
E. S. B. SUTTON. *Secretary.*

Signed in presence of J. H. Goff, W. Chandler, Chas. G. Clarke, Thomas J. Martin and Frank Perry, all of Sault Ste. Marie, Michigan.

Revocable License, No. 2 (August 8, 1892).

The Edison Sault Electric Company is hereby granted a license, revocable at will by the Secretary of War, to construct and to maintain an embankment dam in the St. Marys rapids, adjacent to its property at Sault Ste. Marie, Mich-

igan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accordance with the general plan shown on the map hereto attached, upon the following provisions and conditions:

1. That no portion of the dam, except that extending to Island No. 3 shall be so constructed as to extend further than midway between the Company's property and Islands Nos. 1 and 2.

2. That the Engineer Officers of the United States Army, in charge of the district within which the dam is to be built, may supervise its construction as far as may be necessary to secure compliance with the conditions of this license.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

Witness my hand this nineteenth day of August, 1892.

(Signed) L. A. GRANT,
Acting Secretary of War.

This license, with the terms, provisions and conditions set out therein, is hereby accepted this eighth day of August, 1892.

(Signed) EDISON SAULT ELECTRIC COMPANY,
By Harris T. Dunbar, *President.*

Signed in the presence of F. E. Dunbar.
Engineer's Department, 1892, No. 3390.

6

Revocable License, No. 3 (July 8, 1893).

The Edison Sault Electric Company is hereby granted a license, revocable at will by the Secretary of War, to enter upon the land of the United States, forming part of the St. Marys Falls Canal grounds, at Sault Ste. Marie, Michigan, and to widen the tail race now in use by the said Company, between its power house and Island No. 3, from 15 to 25 feet; and to extend the small embankment dam, running down from Island No. 3 to Island No. 4, all as shown on the attached plat of a part of the canal grounds, the red lines on the plat showing the extent of the proposed work, upon the following provisions and conditions:

1. That unless sooner revoked, this license shall expire at the end of five years from the date of its execution.

2. That the excavated material shall not be removed, but it shall be deposited back (south) of its present position.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

Witness my hand this sixth day of July, 1893.

(Signed) L. A. GRANT,
Acting Secretary of War.

Office, Chief of Engineers, United States of America, Inclosure 2 of 3,081.
Received, Office Chief of Engineers, July 8, 1893.

Revocable License No. 4 (April 4, 1902).

WHEREAS, By revocable license, dated August 13, 1892, the Acting Secretary of War gave unto the Edison Sault Electric Company permission to construct and maintain an embankment dam in the St. Marys River Rapids, adjacent to its property at Sault Ste. Marie, Michigan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accordance with the general plan shown on the map thereto attached, and subject to the conditions therein contained;

AND WHEREAS, Said Edison Sault Electric Company has now applied to the Secretary of War for a modification of said license of August 13, 1892, so as to permit the construction of the proposed new power station indicated at A-A[1] on the attached blue-print, and to extend the present embankment, as indicated by the heavy white line from *a* to *c*, and remove the red lined section *a*, *b*; also to make a new tail race outside of Island No. 3, at said place, all as shown on the attached blue print;

NOW, THEREFORE, This is to certify that the Secretary of War hereby modifies said revocable licenses of August 13, 1892, so as to permit the construction of a proposed new power station, indicated at A-A[1] on the attached blue print, and to extend the present embankment, as indicated by the heavy white line from *a* to *b*, and to remove the red line section *a b*, shown on said blue print; also gives unto said Company permission to make a new tail race outside of Island No. 3, at said place, as shown on said blue print, subject to the following conditions:

1. That this permission shall not be construed as authorizing any invasion or impairment of the riparian rights of any other person or corporation, and the right to withdraw the permission for use of this tail race whenever the interests of the Government so requires, is expressly reserved.

2. That the work of cleaning and deepening the tail race shall conform to the plan outlined in the Company's letter of March 23, 1901, a copy of which is herteo attached.

3. That as soon as the new tail race is ready for use said Company shall abandon the tail race now used on the inside of Island No. 3, and relinquish to the United States all rights of the Company between said Island and the shore.

4. That the work herein permitted to be done shall be subject to the supervision and approval of the Engineer Officer of the United States Army in charge of the locality.

5. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

Witness my hand this fourth day of April, 1901.

(Signed) ELIHU ROOT,
Secretary of War.

Office, Chief of Engineers, War Department, April 6, 1901, No. 38452.

14

The following letter is annexed to the preceding license, and forms part of the official records of the War Department in Washington:—

THE SHOREHAM,
WASHINGTON, D. C., March 23, 1901.

HONOURABLE SECRETARY OF WAR, Washington, D. C.:

SIR,—In addition to the plan of the proposed tail-race, for which we are making application to improve, and to which this is attached and made a part,

We would state that it is our desire to clear out the driftwood, loose boulders, rock and such other material as may be encountered, to a depth of not exceeding 10 feet below the present surface; this at a point where the property of our Company on the east intersects with that of the Government, and on the lines indicated by the plan herein referred to.

From this as a grade starting point, we wish to extend the improvement downstream on the lines indicated by our plan, gradually decreasing the depth of excavation as the slope of the bottom requires, until a plane is reached when no further excavation would be required, the natural surface and improved channel being on the same grade, at a point not lower down the channel than the westerly extremity of Island No. 5.

It is not intended or requested on our part to make any permanent embankments on either side of the excavation so applied for unless required by the Government.

It is not expected on our part that after completing the improvements herein contemplated that we will change the volume of flow of water on the Government property, which we now seek to utilize. It is hoped on our part to pass the same amount of water over the same areas as would naturally flow, concentrating its fall at a given point and utilizing it for commercial purposes, instead of as at present the fall is diffused over a long distance and goes to waste.

Very respectfully,

EDISON SAULT ELECTRIC.

Revocable License, No. 5 (June 9, 1902).

The Chandler-Dunbar Water-Power Company, Sault Ste. Marie, Michigan, is hereby granted a license, revocable at will by the Secretary of War, to occupy, for the purposes of the extension of said Company's dock, a small area of land belonging to the United States Government at Sault Ste. Marie, Michigan, as shown by red lines on the attached drawing, upon the following provisions and conditions:

1. That the United States shall have a perpetual right to the free use of said dock in the future, so far as needed for government work connected with future canal operations and improvements, as Sault Ste. Marie, Michigan.

2. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Chandler-Dunbar Water-Power Company on demand.

Witness my hand this ninth day of June, 1902.

(Signed) WM. CARY SANGER,
Assistant Secretary of War

Office, Chief of Engineers, War Department, June 10, 1902, No. 42721.

3

Revocable License, No. 6 (March 10, 1904).

WHEREAS, By revocable license, dated August 13, 1892, the Acting Secretary of War gave unto The Edison Sault Electric Company permission to construct and maintain an embankment dam, in the St. Marys River rapids, adjacent to its property at Sault Ste. Marie, Michigan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accord-

ance with the general plan shown on map hereto attached, and subject to the conditions therein contained;

AND WHEREAS, By an instrument dated April 4, 1901 the Secretary of War modified said revocable license of August 13, 1892, so as to permit the construction of a proposed new power station, indicated at A-A[1] on the blue print hereto attached, and to extend the embankment, as indicated by the heavy white line from *a* to *c*, and to remove the red line section *a b*, as shown on said blue print and also gave unto said Company permission to make a new tail race outside of Island No. 3, at said place, as shown on said blue print, subject to the conditions therein contained;

AND WHEREAS, Said Edison Sault Electric Company has now applied to the Secretary of War for a modification of said permit of April 4, 1901, as hereinafter specified, so as to allow it to build further out into the rapids of the St. Marys River, in front of the shore properties owned or leased by said Company;

NOW, THEREFORE, This is to certify that, in accordance with the recommendation of the Chief of Engineers, the Secretary of War hereby modifies said instrument of April 4, 1901, so as to permit said Company to build further out into the rapids of the St. Marys River, at said place; the work herein authorized being shown on the attached blue print, and specifically described by reference thereto, as follows:

1. The removal of the wall and buildings (abB), colored red.

2. The substitution of a somewhat larger power house (EE) and a longer wall (a d), colored yellow, in place of the already authorized power house (AA[1]) and wall (ac[1])) colored white.

3. The construction of a wider tail-race (G. G[1]) below the power house, of width suited to the latter, in lieu of the old tail race (f f[1]).

These modifications are made on the following conditions:

1. That this permission shall not be construed as authorizing any invasion or impairment of the riparian rights of any other person or corporation, and the right to withdraw the permission for use of this tail race whenever the interests of the Government so require, is expressly reserved.

2. That the work of clearing and deepening the tail race shall conform to the plan outlined in said Company's letter of March 23, 1901, a copy of which is hereto attached.

3. That as soon as the new tail race is ready for use, said Company shall abandon the tail race now used on the inside of Island No. 3, and relinquish to the United States all rights of the Company between said Islands and the shore.

4. That the work herein permitted to be done shall be subject to the supervision and approval of the Engineer Officer of the United States Army in charge of the locality.

5. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

6. That the area now occupied by the old buildings and old tail race shall be abandoned to the United States, as soon as the new buildings and new tail race can reasonably be completed and ready for service.

Witness my hand this tenth day of March, 1904.

(Signed) WM. CARY SANGER,
Acting Secretary of War.

Office, Chief of Engineers, War Department, March 13, 1904, No. 38452.

29

The following letter is annexed to the present patent, and forms part of the official records of the War Department in Washington:—

THE SHOREHAM,
WASHINGTON D. C., March 23, 1901.

HONOURABLE SECRETARY OF WAR, Washington, D. C.:

SIR,—In addition to the plan of the proposed tail race, for which we are making application to improve, and to which this is attached and made a part,

We would state that it is our desire to clear out the driftwood, loose boulders, rock and such other material as may be encountered, to a depth of not exceeding 10 feet below the present surface; this at a point where the property of our Company on the east intersects with that of the Government, and on the lines indicated by the plan herein referred to.

From this as a grade starting point, we wish to extend the improvement downstream on the lines indicated by our plan, gradually decreasing the depth of excavation as the slope of the bottom requires, until a plane is reached where no further excavation would require, the natural surface and improved channel being on the same grade not lower down the channel than the westerly extremity of Island No. 5.

It is not intended or requested on our part to make any permanent embankment on either side of the excavation so applied for unless required by the Government.

It is not expected on our part, after contemplating the improvements herein contemplated, that we will change the volume or flow of water over the Government property which we now seek to utilize. It is hoped on our part to pass the same amount of water over the same area as would naturally flow, concentrating its fall at a given point and utilizing it for commercial purposes, instead of as at present the fall is diffused over a long distance and goes to waste.

Very respectfully,

EDISON SAULT ELECTRIC COMPANY.

WAR DEPARTMENT,
WASHINGTON, July 30, 1903.

GENTLEMEN,—Referring to previous correspondence concerning the suspension of the permission heretofore granted the Edison Sault Electric Company, to build its embankment dam, power house and other works farther out into the St. Marys River rapids at Sault Ste. Marie, Michigan, I beg to inform you that I have this day executed an instrument modifying the permit of March 10, 1903, granting the permission above referred to, so as to have thereto the following conditions:

"That no part of the proposed embankment dam, power house and other "works shall be so constructed as to extend farther into the River than one-half "of the distance from shore to the nearer island of Islands Nos. 1 and 2.

"That the present rock bottom in the river at the head of the rapids and "head of the head race shall not be cut away or otherwise lowered or deepened."

Very respectfully,

(Signed) ELIHU ROOT,
Secretary of War.

MESSRS. SHAW, WARREN, CADY & OAKES,
Attorneys for St. Marys Power Company, Detroit, Mich.

OFFICE OF CHIEF OF ENGINEERS,
December 23, 1903.

NOTE:—

Paragraph 7 of the Notice of July 30, 1903, modified as follows: (See 17th ind. on 46393, and ind. of Acting Secretary of War, October 31, 1903, on 46393), viz.:

"7. That no part of the proposed embankment dam, power house and "other works, shall be constructed above a line extending from the foot of "Island No. 2 at right angles to the general course of the channel between said "Island and the shore, so as to extend farther into the river than one half of "the distance from the shore to the nearer island of Islands Nos. 1 and 2; and "that around the foot of Island No. 2, such construction shall leave at all stages "of water a free water flow, at least equal in total cross section and volume to "that now passing between Islands Nos. 1 and 2, and the nearest parts of the "embankment of the August 13, 1892, permit."

Revocable License, No. 7 (May 8, 1905).

WHEREAS, By instrument dated March 10, 1903, as subsequently modified by instrument dated July 30, 1903, permission was granted by the Secretary of War to the Edison Sault Electric Company, to construct an embankment dam, power house and accessory works in the St. Marys River at Sault Ste. Marie, Michigan, as specifically described in said instrument of March 10, 1903, and shown on the map attached thereto; such permission, however, being subject to the conditions set forth in said instrument of March 10, 1903, as modified by said instrument of July 30, 1903;

AND WHEREAS, Application is now made by said Edison Sault Electric Company for permission to make certain alterations in the proposed work and certain additional constructions in connection therewith; and the Chief of Engineers, United States Army, has recommended that permission be given to the extent hereinafter set forth;

NOW, THEREFORE, This is to certify that the Secretary of War hereby gives the said Edison Sault Electric Company permission for the construction of a temporary sand-bag cofferdam, as indicated in red on the attached blue print, and described by reference thereto as extending from the point G to Island No. 1, between Islands Nos. 1 and 2, and from Island No. 2 to the point F.

This permission, however, is given upon the following conditions:

1. That the said temporary sand-bag cofferdam shall be entirely removed by said Company not later than the close of navigation of the calendar year, 1905.

2. That the work herein permitted and required to be done shall be subject to the supervision and approval of the Engineer Officer of the United States Army in charge of the locality.

Witness my hand this eighth day of May, 1905.

(Signed) WM. H. TAFT,
Secretary of War.

Office of Chief of Engineer, War Department, May 15, 1905, No. 38452.

54

The United States Government has entered a suit in the Circuit Court of the United States for the Western District of Michigan, Northern Division, against the Chandler-Dunbar Water-Power Company, claiming the ownership

of Island No. 1 and Island No. 2, and asking that the letters patent granted them in 1883 be cancelled and declared void. The suit was commenced by the United States, under the direction of the Attorney-General, on September 2, 1903. All testimony and records and documentary evidence have been taken, and the case was heard last spring, and judgment was given on July 20th last, by Mr. Justice P. Wanty, dismissing the action of the United States Government and maintaining the Chandler-Dunbar Water-Power Company in their act of ownership to Islands Nos. 1 and 2

The United States, as complainant, claims that it is the owner of Islands Nos. 1 and 2, situated in the rapids of the Straits of St. Mary, north of the ship canal and locks belonging to it; that said Islands are situated in public waters, to which no riparian rights can be attached, and that the continued undisturbed ownership and possession thereof is essential to the present and future operation and enlargement of said works in aid of commerce, and also essential to enable the United States to fulfil its international obligations to Great Britain, by maintaining the communicating waterways of the Great Lakes as public waters.

The defendant denies the public character of the waters in which said Islands are situated, and asserts that the ownership of said Islands attaches to the ownership of the adjacent shore title on the American side. The defendant also denies that said Islands are needed by the United States for public purposes, and denies that their ownership and possession are essential to the performance of the international obligations of complainant.

The defendant claims to be the owner of said Islands by virtue of a Patent, issued on December 15, 1883, to its grantor, William Chandler, asserting that said title attaches also to said Islands by virtue of its alleged riparian ownership.

The complainant claims that said Islands, together with a quantity of land on the south shore of the Straits, on a part of which a ship canal and locks are constructed and in operation, have been reserved since the year 1882, and at any rate since April 3 and September 2, 1847, for public purposes.

The defendant, while admitting such reservation in 1847, claims that said reservation has been released:

(a) By order of the President on December 9, 1852;

(b) By the abandonment of an Indian right of occupancy by a treaty, proclaimed April 24, 1856;

(c) By the Act of September 26, 1850, and the operations thereunder, such operations including the survey of the mainland at Sault Ste. Marie, by Thomas Whepley in 1854 and 1855.

The complainant alleges that the tract patented to Chandler was not included in the Whepley survey and was never included in any other survey of the public lands, and that, therefore, the land was not subject to be taken by location with Porterfield Scrip, which is the basis of the Chandler title, under the very terms of the Act of Congress authorizing the use of such scrip.

The defendant alleges that this suit is not brought in good faith by the United States, but that its object, instead of being the assertion of the rights and duties set out in complainant's bill, is to assist a private corporation, the Michigan Lake Superior Power Company, to divert water from flowing past the land covered by defendant's alleged title.

The complainant insists that this suit is brought in good faith, for the objects and purposes set out in its bill.

The defendant also relies upon the Statute of Limitations of March 3, 1891, which provides that suit by the United States to vacate and annul any patent theretofore issued, shall only be brought within five years from said date.

The complainant insists that the patent issued to Chandler in 1883 was not voidable, but absolutely void, because the land embraced therein, being in a state of reservation, was not subject to disposal under the public land laws of the United States, and that a void title is not within the intent of said Statute

of Limitations; and complainant insists, further, that said Statute of Limitations does not apply, because said title is also void for the reason that the land covered by said patent has never been surveyed into legal sub-divisions, or at all, and was not, therefore, subject to a location by Porterfield scrip.

The defendant also alleges that the complainant is estopped by its dealings with the defendant and by its laches to deny the title of defendant to the upland alleged to be embraced in the patent to defendant's grantor.

As above stated, Judge Wanty maintained the plea of the Chandler-Dunbar Water-Power Company in the Circuit Court of the United States for the Western District of Michigan, Northern Division. The Attorney-General has appealed from that judgment to a higher court, and the question has not yet been argued.

9. THE CONSOLIDATED LAKE SUPERIOR POWER COMPANY.

On Thursday the Committee again embarked on board the United States Government Steamer, "Alfred Noble," and went to the Canadian side to visit the plants of the Consolidated Lake Superior Power Company. This Company was incorporated under the Revised Statutes of Ontario, Ch. 164, as the Sault Ste. Marie Water, Gas and Light Company, on June 30, 1888. By Ch. 88, of the Ontario Statutes, 1889, the Company's name was changed to "The Ontario Water, Light and Power Company." By Section 4 of this Act, the Company obtained the power to build dams across the island channels or rapids of the St. Marys River or of any branch within the Province of Ontario, and also to conduct water from the said river and the various branches thereof for hydraulic purposes; also to make flumes, canals or other works to secure the necessary supply of water for their works. The provisions of the section were to be exercised only with the consent of the Crown or the individuals affected. The Company was also authorized to sell, lease or otherwise dispose of surplus water from their dams, flumes or canals. By the Ontario Act of 1890, Ch. 135, the corporation of Sault Ste. Marie was authorized to take stock in the Ontario and Sault Ste. Marie Water, Light and Power Company, and an agreement with this view was ratified and is annexed to Ch. 135, above described.

By the Ontario Act of 1895, the name of the Company was changed into "The Lake Superior Power Company," all rights, powers and privileges to be enjoyed as theretofore granted. The St. Marys Island, containing an area of 170 acres, was part of the military lands, expressly vested in the Crown for the purposes of the Province of Canada by the Act 19, Vic., Chap. 45, Section 6 (1856). The northerly portion, comprising 10.10 acres of St. Marys Island, which belonged to the Dominion as ordinance lands, was granted by way of exchange of properties to the Lake Superior Power Company by Dominion Letters Patent, dated March 19, 1896. They covered the said parcel of land and land covered with water, being a portion of St. Marys Island and the adjacent waters, and reserved the free use of all navigable waters that might thereafter be found on, under, or flowing through, or upon any part of the land. These Letters Patent read as follows:—

"Special grant by Her Majesty the Queen to the Lake Superior Power
" Company, of parcel or tract of land and land covered by water, being a portion
" of the St. Marys Island and the adjacent waters, being in the town of Sault
" Ste Marie, in the District of Algoma, Ontario, dated March 18, 1896, recorded
" March 19, 1896.

"J. POPE,
"*Acting Deputy Registrar-General of Canada.*

"JOHN J. McGEE,
"*Deputy Governor.*

"CANADA:

"Victoria, by the Grace of God, of the "United Kingdom of Great Britain and "Ireland, Queen, Defender of the Faith, "etc., etc., etc.

"To all these presents shall come, Greeting:

"WHEREAS the lands hereinafter described have been required for a " public work of Canada, and the same are no longer required for such public " work;

"AND WHEREAS, Pursuant to the Statutes and under the authority of " our Governor-in-Council in that behalf, we have agreed to grant the said " lands to the Lake Superior Power Company, hereinafter called 'the said " 'Company,' in exchange for certain other lands, situated at the town of Sault " Ste. Marie, in the Province of Ontario, and the said last mentioned lands " have been duly conveyed to us by 'the said Company.'

"NOW KNOW YE, That in consideration of the premises, we do grant, " convey and assure unto 'the said Company' all and singular that certain parcel " or tract of land and land covered by water, being a portion of St. Marys Island " and the adjacent waters, situated, lying and being in the town of Sault Ste. " Marie, in the District of Algoma, and Province of Ontario, and which may be " more particularly known and described as that portion of St. Marys Island " and adjacent waters, the property of the Government of the Dominion of " Canada, lying to the north of a straight line to be hereinafter described, and " bounded on the west by the southerly production of the easterly limit of " West Street, and on the east by the Laird & Henderson mill site (a tract of " 12 acres, granted by Letters Patent, dated June 7, 1877, to John Laird and " Jonathan Henderson); the above mentioned straight line is drawn from a " point on the southerly production of the easterly limit of West Street, distant " one thousand one hundred and forty nine and four-tenths (1,149 4-10) feet, " measured southerly along said production from the southerly limit of Portage " Street, to a point on the southerly production of the westerly limit of Andrew " Street, distant nine hundred and thirty-six and four-tenths (936 4-10) feet, " measured southerly along said production from the said southerly limit of " Portage Street: the above described parcel contains by admeasurement ten and " ten hundredths (10.10) acres, be the same more or less, and is shown colored " pink on a plan hereto annexed, saving, excepting and reserving unto us, our " successors, and assigns the free uses, passage and enjoyment of, in, over and " upon all navigable waters that shall or may be hereafter found on, or under, " or be flowing through, or upon any part of the said parcel or tract of land " hereby granted as aforesaid.

"TO HAVE AND TO HOLD the said parcel or tract of land unto 'the " 'said Company,' its successors and assigns forever.

"GIVEN under the Great Seal of Canada:

"WITNESS: John Joseph McGee, Esquire, Deputy of Our Right Trusty " and Right Well Beloved Cousin and Councillor the Right Honourable Sir " John Campbell Hamilton Gordon, Earl of Aberdeen, Viscount Formartine, " Baron Haddo, Methlic, Tarves and Kellie, in the Peerage of Scotland; Viscount " Gordon of Aberdeen, County of Aberdeen, in the Peerage of the United King- " dom, Baronet of Nova Scotia, Knight Grand Cross of our Most Distinguished " Order of Saint Michael and Saint George, etc., etc., Governor-General of " Canada.

"(E. L. Newcombe, Deputy of the Minister of Justice, Canada.)

"At our Government House, in our City of Ottawa, this eighteenth day

" of March, in the year of Our Lord, one thousand eight hundred and ninety-six,
" and in the fifty-ninth year of our Reign.

"JOHN HAGGART,
"*Minister of Railways and Canals.*

"By Command:
"JOSEPH POPE,
"*Acting Under Secretary of State.*"

The Lake Superior Power Company are at present the owners of the Laird & Henderson mill site, which comprised a certain area of water and islands therein north of St. Marys Island. This mill site had been granted by Letters Patent from the Province of Ontario on June 7, 1877, to John Laird and Jonathan Henderson. Said Letters Patent read as follows:—

"D. A. MACDONALD,

"PROVINCE OF ONTARIO,"

"VICTORIA, by the Grace of God of the
"United Kingdom of Great Britain and
"Ireland, Queen, Defender of the Faith.

"To all to which these presents shall come, Greeting:

"WHEREAS, John Laird, of the town of Sault Ste. Marie in the District
" of Algoma, Miller, and Jonathan Henderson, of the same place, Merchant,
" have contracted and agreed for the absolute purchase of the lands and tene-
" ments hereinafter mentioned and described at and for the price of or the sum
" of twelve dollars of lawful money of Canada, and of which lands we are
" seized in right of our Crown.

"NOW KNOW YE, That in consideration of the said sum of twelve dollars
" well and truly paid to our use, at or before the sealing of these, our Letters
" Patent, we have granted, sold, aliened, converted and assured, and by these
" presents do grant, sell, alien, convey and assure unto the said John Laird and
" Jonathan Henderson, their heirs and assigns forever.

"All that parcel or tract of land and land covered with water, situate, lying
" and being at the town of Sault Ste. Marie in the District of Algoma, in the
" Province of Ontario, containing by admeasurement twelve acres, be there
" more or less, which said parcel or tract of land may be otherwise known as
" follows, that is to say: Being composed of a mill site at the town of Sault Ste.
" Marie, in front of the Township of Awenge, as shown by the green colour on a
" plan by Provincial Land Surveyor, Isaac Traynor, dated May 5, 1877, of record
" in the Department of Crown Lands, a copy of part of which plan is attached
" to these Letters Patent, together with the right of way one chain wide
" from the said mill site to the Korah Road, as shown on the said plan by
" the red colour.

"TO HAVE AND TO HOLD the said parcel or tract of land hereby granted,
" conveyed, assured unto the said John Laird and Jonathan Henderson, their
" heirs and assigns for ever, saving, excepting, and reserving, nevertheless,
" unto us, our heirs and successors, the free uses, passage and enjoyment of, in,
" over and upon all navigable waters that shall or may be hereafter found on, or
" under, or be flowing through, or upon any part of the said parcel or tract of
" land hereby granted as aforesaid.

"GIVEN under the Great Seal of our Province of Ontario.

"WITNESS, The Honourable Donald Alexander MacDonald, Lieutenant-
"Governor of our Province of Ontario;

"AT TORONTO, This seventh day of June in the year of Our Lord, one

" thousand eight hundred and seventy seven, and in the fortieth year of our " Reign.

"BY COMMAND of the Lieutenant-Governor-in-Council.

"ARTHUR S. HARDY, C. L. S.,
"*Secretary.*

"THOMAS H. JOHNSTON,
"*Assistant Commissioner of Crown Lands.*

"Ref. 41, 125; Toronto, 37, 551; F. D. W. F."

The Lake Superior Power Company also acquired from H. C. Hamilton and his wife a piece of land adjacent to the Laird and Henderson mill site, by a deed, executed on June 30, 1890, and duly registered at the Registry Office of the District of Algoma, in the town of Sault Ste. Marie, Ontario.

The present industrial activity and development at the Soo may be said to date from October, 1894, when an agreement was entered into between Francis H. Clergue, of New York city, and Edward V. Douglas, of Philadelphia, for the purchase of the Ontario and Sault Ste. Marie Water, Light and Power Company. This Company was originally formed for the development of power from the falls of the St. Marys River on the Canadian side, but after doing a certain amount of work, including the partial construction of a power canal, found itself financially embarrassed and unable to properly proceed with the completion of the work so that a revenue could be derived from it. The town of Sault Ste. Marie was practically the owner of the Company, only a part of the capital stock being held by individuals. The Company, in addition to their power privileges, were also the owners of franchises from the town of Sault Ste. Marie, for electric lighting, water and street railway privileges. The transactions of Messrs. Clergue and Douglass are a matter of pubilc record, and can be found in Chapter 119 of the Statutes of Ontario for the year 1895. Under this Act, which was assented to April 16, 1895, Mr. Clergue and his associates took over the complete property and franchises of the Ontario and Sault Ste. Marie Water, Light and Power Company. The name of the Company at the same time being changed to the Lake Superior Power Company.

The Tagona Water and Light Company had already been organized in October of 1894 by Messrs. Clergue and Douglass, and its incorporation was confirmed by the same Act above referred to. This Company was assigned the water and lighting privileges in the town of Sault Ste. Marie, and subsequently installed and are now operating an up-to-date water and lighting system.

The new Company, viz., The Lake Superior Power Company, which was composed of Mr. Clergue and his associates, immediately commenced the development of water-power on the Canadian side of the St. Marys Falls. They utilized, as far as possible, the old power canal but increased its size to provide for much larger development of power, and constructed a suitable power house for the development of electrical power from the water wheels, in which the Tagona Water and Light Company were provided with a pumping and lighting station.

The Sault Ste. Marie Pulp and Power Company was also provided with mill accommodation in the same group of buildings. These buildings are of solid stone construction and of modern type, Lake Superior limestone being used, quarried from the Company's own property. This Company was incorporated in 1895, and was an allied Company of the two others above mentioned, the promoters being the same. It was first planned to make mechanically

ground wood pulp under the wet process, but, after manufacturing wet pulp for a time the mill was changed to make dry pulp, and has been operating under this process ever since. The manufacture of pulp marked the commencement of Sault Ste. Marie as a manufacturing town, and consequently a new area of activity.

The promoters of the Company mentioned above, realizing the vast natural resources of the district, rapidly proceeded with the inauguration and incorporation of various new industrial and transportation companies, a brief description of which follows. The town and district naturally profited greatly from these developments, entailing as they did the expenditure of vast sums of money for labour and material in their midst.

The Lake Superior Power Company did not confine itself to the development of power alone, but early began the exploration of the surrounding districts for minerals, and met with such success, with respect to iron and nickel finds, as to warrant the construction of plants for the treatment of these ores. Blast furnaces for the smelting of iron ores and a steel rail mill were built, together with operatives' houses; and for the utilization of the hardwoods of the district contiguous to the Soo a charcoal by-product plant and kilns were constructed. The charcoal from these plants was used in one of the blast furnaces. A reduction work was built for the treatment of nickel ore, one of the features of this process being the saving of the sulphurous gas for use in the manufacture of sulphite pulp. This Company was meanwhile successfully operating the Helen Iron Mine and the Gertrude Nickel Mine.

The blast furnaces, steel plant and charcoal plant were originally constructed by the Lake Superior Power Company, but in the year 1901 were turned over to the Algoma Steel Company.

The Lake Superior Power Company had also become the owner by purchase, of large areas of real estate in and around Sault Ste. Marie, and particularly on the river front, where it built docks, and otherwise held the land to provide for the expansion of itself and the other allied Companies.

The Sault Ste. Marie Pulp and Paper Company built in addition to its Ground Wood Pulp Mill a large and handsome sulphite mill, and also commenced the manufacture of building paper and tar paper.

With so much construction and operation going on it was soon found necessary to have a workshop of sufficient capacity to take care of all repairs and a great part of new work. This was started on a comparatively small scale, but the demands upon it were so large that it was later found essential to extend it. This was done from time to time, until finally the Algoma Iron Works was formed, and a splendid modern machine shop with galleries for small work constructed, modern machinery sufficient to do the repairs of all the different departments of the various companies being installed. The blacksmith and tin shop were also added, and an up-to-date foundry for casting iron, brass and copper was built. These are all operating at the present time. This concern not only does repairs for the various companies but it also handles a great deal of outside work, including marine repairs, of which work it makes a specialty.

Railroad facilities were naturally required to provide for handling ores from the mines and forest products, as well as switching at the various plants, and the Algoma Central Railroad was incorporated August 11, 1901, to serve this purpose, and in addition to a railroad of 120 miles, it owns and operates a fleet of vessels trading out of Sault Ste. Marie, consisting of four passenger boats and six freight boats. As part of the transportation plant of the Company, The Manitoulin and North Shore Railway was incorporated July 7, 1901. Both of these railroads were the recipients of land grants from the Ontario Government, the conditions of which can be obtained in the Statutes.

The construction of these transportation lines was carried on by the Algoma Commercial Company, formed for this purpose, as well as for the purpose of

carrying on mining and lumbering operations, the latter operation including the supply of pulp wood through the mill of the Pulp Company, and that of saw logs and veneer logs to its own saw and veneer mills at the Soo, the saw mill aving a daihly capacity of 100,000 feet, and the veneer mill being the largest in Canada. This Company also built a car building plant at the Soo with a capacity of eight flats or four box cars per day. It further made extensive explorations for minerals, including iron, nickel and gold. The Company owns at present the Josephine Mine, which is a bessemer iron mine, the Grace Gold Mine and the Elsie Nickel Mine.

The right to operate street car lines had also been granted to the companies under the original franchise, and the International Transit Company was formed for the purpose of operating electric street car lines in the town of Sault Ste. Marie, Ontario, and also a ferry on St. Marys River between the two Soos. An up-to-date electric railroad was constructed and is at present operating. The equipment of the Company also includes two ferries, the "Algoma" and the "Fortune." These are modern ferry boats and have sufficient capacity to easily handle the traffic.

In the year 1901, the various companies were consolidated under the ownership of the Consolidated Lake Superior Company. The individual companies were made subsidiary to this Company in that the Consolidated was a holding Company and owned the stock of the various companies, the companies, however, preserving in every way their corporate existence. The subsidiary companies were reorganized in the year 1904 under the title of the Lake Superior Corporation, which at present is the holding Company.

Before the advent of these companies the town of Sault Ste. Marie had a population of 2,000. There were no factories of any kind in the place, and the community did a very small business except a certain amount of trading. The construction of the large factories of the allied companies immediately gave a great impetus to the town. The population has steadily increased, until at the present time it is estimated that the population is 15,000. The works and properties of the allied companies cover an acreage of 1,600 and a total of about 4,000 men find employment. The town is in a prosperous condition, and is certain to become one of the great manufacturing centres of the country.

The following is a list of the various companies with the different plants operated by each, together with the number of men employed:—

Tagona Water and Light Company—

Municipal system of electric lighting and water supply; employs twenty men; eighty-eight miles of electric wire; twenty miles of water main.

Lake Superior Power Company—

Owners of the Canadian Power Plant; nickel reduction works; Gertrude Nickel Mine and smelter; brick plant; large acreage real estate; Helen Iron Mine; two hundred and twenty-five men employed.

Sault Ste. Marie Pulp and Paper Company—

Ground Wood Mill, 110 tons daily capacity; Sulphite Pulp Mill—50 tons daily capacity; Building Paper and Tar Paper Mill, 20 tons daily capacity; one hundred and seventy-five men employed.

Algoma Iron Works—

Large modern machine shop, blacksmith shop, tinsmith shop, pattern shop, brass, iron and copper foundry; employs one hundred and fifty men.

Algoma Steel Company—

Two blast furnaces, daily combined capacity 450 tons; steel plant, 600 tons steel rails daily capacity; charcoal retort plant, daily capacity 8,000 bushels

charcoal, 1,600 gallons wood alcohol, 24,000 pounds gray acetate of lime; thirteen hundred men employed.

Algoma Central and Hudson Bay Railway Company—

One hundred and twenty miles of standard railroad under operation, fully equipped with modern rolling stock; steamship line consists of four passenger and six freight boats, also operates four docks; three hundred and fifty men employed.

Manitoulin and North Shore Railway Company—

Thirteen miles of standard railroad under operation, fully equipped with modern rolling stock, operated between Sudbury and Gertrude Mine; thirty men employed.

International Transit Company—

Operates standard electric street car line in the town of Sault Ste. Marie, Ontario, providing eight minute service; also operates ferry service between two Soos, owns two ferries; fifty men employed.

Algoma Commercial Company—

Operates saw mill, daily capacity 100,000 feet lumber; veneer mill, largest in Canada; car building plant, capacity eight flats or four box cars per day; large lumber operations; extensive mining property in districts around the Soo; employs eighteen hundred men.

The site of the power canal of the Company is on certain streams between the islands originally existing in the rapids, and the intake is below the crest of the rapids from a natural bay in the river. The canal from the head-gates to the power house is 2,200 feet long, and the tail-race from the power house to the dredged channel opposite the north and south docks of the Lake Superior Power Company, is about 1,000 feet long. The canal is tropesoidal in section, with an earth and rock bottom and earth banks, the canal sides of which are paved with riprap. It is about 220 feet wide at the water line and about 12½ feet deep at the head gates, changing gradually to a width of 85 feet and a depth of 15½ feet at the power house. The head gates, which are constructed of wood, are located about 70 feet west of the Canadian Pacific Railway where it crosses the power canal. The power is developed by 42-51 inch vertical turbines, and at mean head is about 15,000 horse-power at the turbine shafts. To develop additional power would require either the enlargement of the present canal or the construction of a new canal. The amount that could be developed depends upon the division of the flow of the river for utilization in United States and Canadian territory. The total flow of water, when all water wheels are running to their full capacity, is about 8,800 cubic feet per second, but the average flow is about 7,000 cubic feet per second.

The compensating works erected by the Lake Superior Power Company at the request of the United States War Department for the waters diverted through the canal of the Michigan Lake Superior Power Company on the American side, are located about 150 feet west of the centre line of the International Bridge, opposite spans Nos. 9 and 10, which are those nearest to the Canadian shore. They consist, as at present constructed, of an earth and rock fill dam opposite span No. 10, and a series of four stone and steel sluice gates opposite span No. 9. These gates leave a clean waterway opening each between stone and concrete piers of 52 feet 2½ inches, and the elevation of the sill of the gates is 591, or about 10½ feet below mean water level. The gates are counter-weighted and operated by hand by means of suitable trains of gears. The cost to date is about $267,000.00. The result accomplished by the compensating works with the gates closed is to reduce the flow through the rapids section by about 10,000 cubic feet per second at mean water level of 601.5 feet above mean tide water

at New York City. As the gates have not been opened since construction, no data can be given as to the effect on flow under such a condition.

The Lake Superior Power Company claims to have constructed these compensating works under the authority given it by Acts of the Legislature of the Province of Ontario, and more particularly by section 4 of Ch. 88, 52 Vic., page 311 of the Statutes of Ontario, which reads as follows:—

" After having acquired the land or property necessary for the carrying out " of the works hereinafter mentioned, the Company shall have the power to " erect engines and employ hydraulic power, and for such purposes to erect, " construct and maintain a dam or dams across the inland channels or rapids of " the St. Marys River, or of any branch thereof within the Province of Ontario " and also to conduct water from the said River and the various branches " thereof, and streams entering therein by canals or flumes to be made by the " Company at any place on the said rapids along the shores thereof for hydraulic " purposes, and may also construct all necessary locks, piers, wharves and other " works on the canals, and may extend its work into, and take possession of the " bed and beach of the said St. Marys River at the entrance of the canals or " flumes, and for the foundation of the same and in their entire length, and at " any point at which it may be found expedient to provide an outlet or outlets " for the waters of the canals or flumes, or tail races for water-powers taken " from the said canals or flumes; the Company may, for the purpose of survey, " enter upon all lands on the line of the rapids, and from time to time may pur- " chase, acquire, hold and enjoy all lands necessary for all the above purposes, " and such ditches as may be necessary along the banks of the said river and " streams, or for a road or either or both sides of the river branches, canals and " flumes; the Company may make all bridges, intersection, crossings whether " through, under, or upon public or private roads, or any aqueduct or canal, and " may erect all necessary dams, piers, wharves, raceways, flumes, canals, or " other works to secure the necessary supply of water for the works, and may " construct and maintain such buildings, mills, machinery, tramways, or rail- " ways and switches, wharves and piers, dams, canals, raceways, and other con- " duits and works as may be requisite or may be deemed advantageous for carry- " ing on the business of the said Company; Provided that it shall be responsible " for all damages arising from inundations, if any, which its dams may cause, " and all damages which may be caused by the carrying out or maintenance of " any of its works; Provided that nothing herein contained shall be held to con- " fer the right of expropriating any land or interest therein, or any water or " other privilege, and the provisions of this section, so far as they affect " or may affect the rights or interests of the Crown or any individual, shall " be taken advantage of and exercised only with the consent of the Crown or " such individual in that behalf first obtained."

The Company claims, having been advised by its then solicitor and subsequently by the law officers of the Government of Ontario, that the title to and jurisdiction over the lands under the water on the Canadian side of the river and all the riparian rights appertaining thereto, including those of water-power and hydraulic developments, were vested in the Crown, as represented by the Province of Ontario, and in the Legislature of the Province of Ontario respectively, and as the works were constructed at a point where it was believed the works did not interfere with navigation, counsel for the Company at the time advised that no consent or permission from the Dominion Government was necessary.

The solicitors of the Company further stated that sometime after these works were constructed, and during a visit to Sault Ste. Marie of the Honourable Mr. Tarte, the then Minister of Public Works, and Mr. Coste, late Chief Engineer of the Public Works Department, and at the time employed by said Department as supervising Engineer of the works in course of construction at Port Colborne, Ont., the compensating works were inspected, and Mr. Coste suggested to Mr.

F. H. Clergue, who was then President of the Company, to apply to the Dominion Government for approval of the works then constructed. The present directors of the Consolidated Lake Superior Power Company now understand from Mr. Clergue that, while not conceding that the action of the Company at the time had not been regular and proper, he intended making the application suggested by Mr. Coste, his understanding being that the Minister of Public Works and Mr. Coste were satisfied with the construction, and that it would only be necessary to present a formal application under the statute to obtain the approval of the Government, subject, of course, to such reasonable regulations respecting the operation of the compensating works as the Minister of Public Works might see fit to impose. Owing to Mr. Clergue's retirement from the management of the Company and the subsequent financial difficulties which befell the Company, the matter was overlooked, and it only came to the attention of the directors of the present Consolidated Lake Superior Power Company when the sub-committee, in visiting the compensating works at the Soo, asked under what authority they had erected the same. The Company has, through its solicitor, filed the formal plans and description of the site with the Public Works Department and with the Registrar of Deeds at Sault Ste. Marie. The Company, while not conceding that its action has been in any way irregular, is quite prepared to accept the approval of the Dominion Government, subject to such reasonable regulations as may be imposed respecting the operation of the compensating works.

The application should have been made from the start, in virtue of Ch. 92 of the Revised Statutes of Canada, entitled "An Act respecting certain works constructed in or over Navigable Waters."

The Engineers of the Company report that the mean flow of the St. Marys River, including that through the rapids, power canals and ship canals, has been for the last 24 years about 73,600 cubic feet per second. They further report that it appears probable from the data which they have that the amount of power which can be developed from the flow of the rapids is, commercially speaking, governed not by the mean flow for a period of 24 years, but is that which can be developed from the mean flow from the rapids during years of low water. Under the best conditions that can be obtained with a very complete system of compensating works in the rapids, the flow can probably be regulated so as to obtain a mean annual discharge in the years of low water of about 60,000 cubic feet per second.

10. THE CANADIAN SHIP CANAL.

The sub-Committee, after having visited thoroughly all the plants and the works of the Consolidated Lake Superior Water-Power Company at Sault Ste. Marie, Ont., re-embarked on board the United States Government steamship "Alfred Noble," for a visit to the Canadian and American locks. Mr. J. C. Boyd, Superintendent of the Canadian Canal, accompanied the members of the sub-Committee.

The length of the Canadian lock between the extreme ends of the entrance piers was, at the end of the season of 1904, 6,767 feet. During the season of navigation of 1905, another 800 feet has been added, which, when completed, will make a total length between the extreme ends of the entrance piers of the Canadian canal of 7,567 feet. There is only one lock of 900x60 feet, and it is of solid masonry. The depth of water on sills at lowest known water level is 20.3 inches. But the mean depth on the mitre sills is 22 feet. The total rise or lockage is 18 feet. The breadth of the canal at bottom is 141.08 and the breadth at surface of the water is 150 feet. This canal has been constructed through St. Marys Island, on the north side of the rapids of the River St. Mary. The approaches to the canal are channels dredged through boulder shoals. The superstructure of the entrance piers is concrete. The gates and culvert valves are operated by electricity.

On October 13, 1904, the masts for day marks, from which fixed red

lights were exhibited to mark the axis of the channel leading to the lower end of the Canadian canal, have been replaced by square, open skeleton, galvanized iron, unpainted towers with sloping sides, surmounted by square wooden lanterns, from which red lights are shown. Each light consists of a group of three incandescent electric lamps, which show strong beams in the line of range and over a small arc on each side thereof. On the channel side of each tower is a white, diamond-shaped day beacon of slatwork.

The front tower is 62 feet high and stands on the shore of the bay north of the entrance to the canal; its light is 63 feet above the water level below the canal and is visible 2.3 miles. The back tower, 72 feet high, is 1,150 feet north of the front light; its light is 78 feet above the river level and is visible 2.3 miles.

To enter the canal from below, the two lights are brought in range opposite the power house, and kept thus until the axis of the canal is reached.

A railway drawbridge crosses the canal with a drawspan of about 144 feet 5 inches clear width between the canal walls, and 15 feet clear height above low water surface. The draw does not sound any whistle, and the closure of the draw is indicated by the waving of flags from the end of the bridge. Boats sound three whistles as a request for opening the draw if it be found closed. The bridge if closed at night, shows a red light.

The Canadian canal was built between the years 1888 and 1895, and the cost with approaches was $4,000,000.

The Department of Railways and Canals is making extensive improvements at the west or upper entrance of the canal. The eastern or lowest entrance has been deepened to 21.5 feet and to a width of 315 feet. The south pier was originally only 130 feet long. To this a concrete extension has been built 800 feet long, as above stated, making the total pier length 930 feet. This work was completed during the season of 1904.

During the season of 1905 the west or upper entrance has been deepened to a depth of 21.5 feet, and a width from 300 to 500 feet. The work has been in progress during all summer, under contract. The south pier at the west entrance was originally 1,265 feet in length. To this an extension 800 feet long is now being built, under contract. When this extension is completed the length of this pier will be 2,065 feet.

The first lock which was ever built on the Canadian side of the river was erected by the Hudson Bay Fur Company, in 1798. It was 38 feet long, 8.9 feet wide, with a lift of 9 feet. A towpath was made along the shore for oxen to pull the vessels and canoes through the upper part of the rapids. This lock, excepting its timber floor and mitre sills, was destroyed in 1814 by United States troops from Mackinaw Island under command of Major Holmes. This lock has been restored and is to be seen near the general offices of the Consolidated Lake Superior Power Company. The Hudson Bay Fur Company also built a block house nearby to protect the locks from the attacks of Indians, and this structure has been restored, and is now one of the attractions of the Soo, for the double reason of its being what it is and because it was the first home of Francis H. Clergue in the Soo.

II. THE UNITED STATES SHIP CANAL.

After this lock, the first of real consequence was the State lock built on the American side by the State of Michigan, from 1853 to 1855. The canal was 1½-miles long, 64 feet wide at the bottom, 100 feet wide at the water surface and 13 feet deep. There were two tandem locks of masonry, each 350 x 70 feet, having 11½ feet on the mitre sills and a lift of about nine feet each. The locks were destroyed in 1888 by excavations for the present Poe lock. The Weitzel lock, 515 feet long, 80 feet wide in chamber, narrowing to 60 feet, at the gates, was built by the United States in the years 1870 to 1881. It was opened to navigation on Sepetmber 1, 1881. The depth of water on mitre sills is 17 feet

when the upper pool is 601.9 and the lower pool 584.4 feet above mean tide at New York. At the same time the depth of the canal was increased to 16 feet, the mean width to 160 feet, and the stone slope walls were replaced with timber piers, having a vertical face.

The Poe lock, 800 feet long, 100 feet wide, and having 22 feet of water on the sills, was built by the United States in the years 1887 to 1896. Hydraulic power is used for operating the two American locks, a pressure of 115 pounds per square inch being used for the Weitzel lock machinery and a pressure of about 200 pounds for the Poe lock machinery.

A railway draw bridge crosses the canal at a point about 3,000 feet above the head of the locks and about 300 feet above the movable dam. The clear width of draw opening between canal walls or piers is about 114 feet 5 inches, and the clear height of draw above the low water surface is about 15 feet. For passage of trains, the draw sounds one whistle, then closes, then sounds six whistles answered by two whistles from the waiting locomotive. After passage of train the draw is opened without further signal. Boats sound three whistles, as requested, for opening the draw if it be found closed. The bridge, if closed at night, shows a red light.

This bridge is continued across the St. Marys River at the head of the rapids by ten fixed spans, each of approximately 232 feet clear width and 15 feet clear height above water surface.

During the fiscal year ended the 30th June, 1904, 16,120 vessels passed through the Canadian and the two American locks. These vessels had a total registered tonnage of 24,364,138 tons, and they carried 31,546,106 tons of freight, and 37,695 passengers.

From the opening of the season of navigation of 1905 to November 30th, inclusive, the statistics of the traffic through Canadian and American locks are as follows:—

Through the	American	locks,	15,614 vessel passages
"	" Canadian	"	5,495 " "
"	" American	"	9,507 lockages
"	" Canadian	"	3,910 "
"	" American	"	30,360,448 registered tonnage
"	" Canadian	"	5,403,906 " "
"	" American	"	37,641,105 tons of freight
"	" Canadian	"	5,359,368 " "
"	" American	"	28,315 passengers
"	" Canadian	"	25,741 "

These figures are from the opening of navigation to and including November 30, 1905.

The inspection of the ship canals ended the visit of the sub-Committee to Sault Ste. Marie. Before separating a resolution was passed thanking the officers of the Corps of Engineers of the United States Army at Sault Ste. Marie, Michigan, and in particular Mr. L. P. Morrison, Junior Engineer, in charge, for the great courtesy they had extended to the members of the sub-Committee during their inspection of the conditions at the Soo.

Mr. Clinton left to return to his home in Buffalo, and the Canadian section of the sub-Committee proceeded to Duluth via Port Arthur and Fort William, to make a preliminary investigation into the proposed works of the Minnesota Canal and Power Company. They left Friday, August 18th, by the Canadian Pacific Railway Co's Steamship "Athabaska" at 3 p. m., and arrived at Port Arthur the following day at 12 noon, covering the distance between Sault Ste. Marie Ontario, and Port Arthur in about twenty-two hours. The weather being exceptionally fine they had a splendid opportuntiy of examining thoroughly the conditions of the navigation on Lake Superior, and to obtain valuable information.

12. ST. MARYS RIVER WEST OF THE SHIP CANALS AND WHITE FISH BAY.

Shortly after having left the western end of the Canadian ship canal, the vessel passed near the Vidal shoal, situated at about 1½-miles above the rapids, between the United States and the Canadian channels. The removal of that shoal is of paramount necessity, as it is a source of great danger to vessels, particularly in foggy weather.

The route of the vessels off the Vidal shoal is in a direction south-west up to a point opposite Pointe au Chene, Ontario, where it turns in a direction north-west and follows it in a straight line to Ile Royale. At that point the route makes a little turn to the north, as far as Pie Island and Thunder Cape, thence proceeding again north-west to Port Arthur.

The ships enter Lake Superior properly at a point opposite Gros Cap, Ontario, and Point Iroquois, Michigan. The distance between Sault Ste. Marie and Gros Cap is about 30 miles.

13. LAKE SUPERIOR.

Lake Superior is the largest of the Great Lakes and also the largest area of fresh water on the globe. It is characterized by deep water and by high and rocky shores along a large portion of its coast. Compared with the other Great Lakes, its surface is more elevated above the sea; it is more irregular in outline, has deeper and colder water, more fog, more ice, a shorter season of navigation, less rain, about the same snow fall, and winds and seas not greatly different.

The prevailing storms on Lake Superior are from the north-east and north-west. During the summer months the perils of navigation are mainly those of fogs and squall winds, the latter occurring almost invariably in connection with thunder storms. In the spring and the autumn the lake is stormy and dangerous.

The length of the steamer track from Point Iroquois to the entrance of Duluth harbor is 383 miles; from Michipicotan harbor, Ontario, to Duluth, in a straight line, the distance is 350 miles. The breadth of the lake (longitude 86 degrees 45 minutes) is 160 miles. According to the report of the Deep Waterways Commission, published in 1897, the area of the water surface of Lake Superior is 38,800 square miles, but according to the calculations of the Canadian Geological Bureau the total area of the water surface, as divided by the boundary line between Canada and the United States is, in the United States 20,870 square miles and in Canada 11,760 square miles, making a total of 32,630 square miles. The total area of the basin is 80,400 square miles, and the area drained is 48,600 square miles. The total land shore area is 49,370 square miles, divided as follows by the boundary line between Canada and the United States: on the Canadian side 31,730 square miles, and on the United States side 17,640 square miles. The maximum depth recorded by the United States Lake Survey officers is 1,012 feet. According to statistics furnished by the United States Weather Bureau, the average yearly rainfall on Lake Superior is 28 inches; the mean surface of the lake above mean tide at New York city, during forty-five years, from 1860 to 1904, is 602.29 feet. The standard high water above mean tide at New York city is 605.32 feet; the standard low water adopted by the United States Lake Survey for the new charts, above mean tide at New York city, is 600.56 feet. The low water datum for harbour improvements above mean tide at New York city is 601.75 feet. The mean level of Lake Superior above the mean level of Lake Huron is 20.89 feet. The discharge of St. Marys River, as measured in 1902 by the United States Lake Survey officers, at the mean stage of Lake Superior (602.29 feet) is 75,000 cubic feet per second. The increase in discharge per foot rise of the lake is 15,500 cubic feet per second. The average date of the opening of navigation at the St. Marys Falls Canadian

canal is April 27, and the average date of the closing of navigation is December 2nd.

During the year 1904 the monthly mean stages of the lake above mean tide at New York city were as follows:

January	602.51 feet
February	602.32 "
March	602.14 "
April	603.19 "
May	602.51 "
June	602.81 "
July	602.91 "
August	602.99 "
September	603.08 "
October	603.27 "
November	603.21 "
December	602.82 "

The yearly mean stage in 1904 was, therefore, 602.73 feet.

During the season of navigation of 1905, from March to October, inclusive, the mean stages of Lake Superior have been as follows:—

March	602.05 feet
April	602.24 "
May	602.48 "
June	602.76 "
July	603.08 "
August	603.21 "
September	603.41 "
October	603.42 "

The Canadian Government has established storm warning stations at Fort William, Port Arthur and Sault Ste. Marie. At Fort William it consists in a signal mast, a little to the east of the C. P. R. elevators. At Port Arthur a signal mast is to be seen on the inner end of the government wharf, and another signal mast exists on the government wharf at Sault Ste. Marie, Ontario. The United States Government has established life-saving stations at the following places:—

Crips, Michigan; Duluth, Minnesota; Grand Marais, Michigan; Marquette, Michigan; Muskallonge Lake, Michigan, near the mouth of Sucker River, 15½ miles easterly of Grand Marais; also at Portage Lake ship canals, Two Hearted River and at Vermillion Point, Michigan.

Compared with others of the Great Lakes, Lake Superior was fairly well provided with natural harbours, and the works of improvement, on the Canadian side as well as on the United States side, have created additional harbours of refuge at various points. One class of improved harbours consists of bays of generally deep water, having wide mouths, or openings towards the lake, which have been provided with breakwaters to partially close the natural openings and form the desired protection.

A second class of improved harbours consists of those whose entrances are formed by parallel piers or jetties extending from the shore out across a bar of gravel or sand to the desired depth of water, the primary object being either to confine the current to a fixed and narrow width in order to scour and maintain the channel to the depth needed, or to prevent an improved channel from being filled by drifting sand.

Port Arthur affords an illustration of a dredged channel protected from waves and drifting material by a breakwater pier. In late years deeper channels have been required than could be obtained by the scouring action of the currents alone, and dredging has been resorted to. In the harbours at the mouths of rivers the enlargement of the channels by dredging has reduced the velocity

of the outgoing currents and changed their action from that of scouring to that of depositing silt or coarser material, so that further dredging from time to time has become necessary. Therefore the jetty piers now serve only to protect the improved channels from the filling up which would result from the action of storm waves and of the so-called littoral currents.

Among the natural and improved harbours on the Canadian side of Lake Superior, from Gros Cap, at the head of St. Marys River to Port Arthur, there are Goulais Bay, with an average depth of nine fathoms inside and which affords good anchorage and protection from all winds; Gargantus harbour, a small harbour of refuge, about 77 miles from the head of St. Marys River, which affords good anchorage and shelter; Michipicoten harbour, on the northerly shore of Michipicoten Bay, and the eastern shore of Lake Superior, which is one of the lake terminals of the Algoma Central Railway; Peninsula harbour, Nipigon Bay and Thunder Bay, which is a fine sheet of water extending 35 miles in a north-east and south-west direction, with a width of 15 miles north-west and south-west, narrowing at both ends. On its shores, cliffs rise from 1,000 to 1,350 feet out of the lake. The north-west coast of the bay, extending from Port Arthur to its head, may be approached within a mile.

About 25 miles opposite Thunder Cape is Isle Royal. The north shore of this island can be approached with safety within three-quarters of a mile of the general direction of the coast. Right at the mouth of Thunder Bay is Pie Island, about 900 feet high, eight miles long east and west by four miles wide. Good anchorage from southerly winds is to be found off the north and north-west sides, and from northerly winds off the south side. The passage between Pie Island and Thunder Cape, 5¼ miles wide, is quite clean. Thunder Cape is a very prominent headland, about 800 feet high, marking the coast entrance to Thunder Bay. Upon its south end is a lighthouse tower 45 feet high, exhibiting a light revolving white every minute, visible at 14 miles. A steam fog-horn sounds blasts of five seconds every half minute. All parts of the cape may be approached to within 200 yards.

On the north-western side of Thunder Bay is Port Arthur, the western terminus of the Canadian Northern Railroad.

14. PORT ARTHUR AND FORT WILLIAM.

Port Arthur is rendered safe by breakwaters parallel to the shore, the entrance being through a gap marked by a fixed red light, 43 feet high, upon the northern portion of the breakwater. The channel is dredged, and 19 feet may be carried to the Canadian Northern Railway Company's elevator. The inner harbour at Port Arthur is therefore formed by two crib-work breakwaters extending in front of the wharfs on the water front of the town. The more northerly breakwater is 3,654 feet long, and has a general trend of south 25 degrees west from a point outside the elevator wharf at the north end of the town. The lighthouse is on this breakwater, and is situated at 31 feet from its south end, showing, as above stated, a fixed red light 43 feet high.

The breakwaters are sunk generally in 17 and 18 feet of water, and have a height of five feet six inches above low water. On the lake side the crib work is made vertical up to about low water line, and from there to the top it is finished with a slope one in one, strongly sheeted and the angles protected by boiler plates. The construction of this breakwater has converted what was formerly a dangerous and exposed roadstead into a safe and commodious harbour.

The main entrance between the breakwater is 366 feet wide and is lighted as above noted. A red gas buoy showing a white acetylene gas light automatically occulted at short intervals, is moored in the prolongation of the dredged channel, 2,575 feet south-east by east of the breakwater light. Mariners find the best water by passing 50 to 100 feet south-west of the buoy and steering

to pass the same distance off the northern breakwater, when not less than nineteen feet will be found.

There are two other entrances: The western entrance 1,800 feet in width and reported in 1899 as 12 to 18 feet deep, and the eastern entrance 250 feet wide and reported in 1899 as 17 feet deep. The depth of water in the basin was reported in 1899 as varying from 14 to 18 feet.

The Pigeon River Lumber Company have at Port Arthur a large saw mill and, besides, several new industries are developing. Port Arthur is connected with Fort William by an electric railway, and both cities have a common telephone system.

Fort William is situated five miles west of Port Arthur, on the west side of Thunder Bay and at a short distance up the Kaministiquia River, described as a broad stream with firm banks and good advantages for lake traffic. Fort William is the great shipping port of the Canadian north-west.

The Kaministiquia River rises in Dog Lake, at an elevation of about 718 feet above Lake Superior, and flows southerly and then easterly to the lake, a distance of about 42 miles. Falls and rapids are found along its course down to a few miles above the lake. It bifurcates twice in the vicinity of Fort William and has three mouths, known as Fort William River, McKeller's River, and Mission River. Extensive dredging operations by the Canadian Government have deepened and widened the channel over the bar at the mouth, and up the river to Fort William, and provided basins for the use of vessels. The nature of the river is such that sand bars are formed at the mouth each season.

The channel at Fort William is dredged and 19 feet of water may be carried into Fort William, and 16 feet may be found five miles up the river to the coal unloading plant of the Canadian Northern Railway Company.

For the purpose of extending the period of navigation a powerful tug has been employed in the fall of the year of 1904 to prevent the formation of ice on the shoals at the mouth of the river, or to break it loose if formed, and thus keep the channel open for a longer time. The material brought down by the river is fine and appears to consist of clay and light sand. The shoals extending out from the mouth on either of the channels, to the vicinity of the Welcome Island, are sandy and have a very gentle slope, so that sailboats may ground half a mile from shore within hailing distance of vessels navigating the channel.

From Mutton Island, which is situated a short distance north of the mouth of Mission River, to the shore the water is so shallow that it is scarcely possible for even a row-boat to pass. This shoal appears to be the direct product of the action of the waves and the final result will probably be a bar connecting the island with the shore.

Fort William harbor is well lighted.

A cylindrical gas buoy, displaying a white acetylene gas light automatically occulted at short intervals, is moored at the outer end of the northern edge of the dredged channel.

The axis of the channel is marked by two fixed red range lights. The front tower stands on the east end of the timber facing of the Canadian Pacific Railway coal yard, which forms the north shore of the river at that point, and is close to the water's edge; the light is 42 feet above water-level. The rear tower stands behind the trestles and pockets of the coal plant, by which it is partially hidden from the water, and is 122 feet high and painted red. A day-mark, near top of lantern column, consists of a black square, six feet on a side, with a white diamond in the middle. The light is incandescent electric, 128 feet above lake level, and is visible 12½ miles in the line of range.

The towns of Fort William and Port Arthur afford a most striking example of Western progress. The population has doubled in two years. Port Arthur has now 7,000 people, and Fort William 7,500. It is predicted that within five years there will be 50,000 people within the borders of the two cities. This

remarkable growth is due to the advantageous situation of Port Arthur and Fort William, and their unexcelled railway and steamship facilities. They are the gateways to the great West, the spout of the hopper from which pours millions of bushels of grain grown on the Western prairies and a large proportion of which is transshipped there, to be carried down the lake to Georgian Bay points or to Cleveland, Buffalo, Kingston and Montreal. The facilities for handling this great crop at Port Arthur and Fort William are being increased from year to year. The elevator storage capacity at Fort William and Port Arthur, according to the latest figures, are as follows:—

At Fort William—

Canadian Pacific Railway Elevators, A and C	2,750,000 bushels
" " " " B and E	2,500,000 "
" " " " D	3,162,000 "
Total	8,412,000 "
The Empire Elevator Company, Ltd.	1,700,000 bushels
The Ogilvie Flour Mills Company, Ltd.	750,000 "
Total at Fort William	10,862,000 "

At Port Arthur—

Canadian Northern Railway, Elevators, A	3,500,000 bushels
" " " " B	3,000,000 "
Total	6,500,000 "
J. G. King & Co.'s Elevators	800,000 "
Total at Port Arthur	7,300,000 "

The total amount of wheat shipped at the Canadian Pacific Railway elevators at Fort William for the year ended December 31, 1904, is 22,534,416 bushels. The total amount of wheat shipped out of the same elevators from the 1st of January to the 21st of November, inclusive, 1905, is 17,511,041 bushels.

On the other hand, the Canadian Northern Railway Company, in a statement furnished December 1, 1905, states that the total storage capacity of its two elevators at Port Arthur is 7,000,000 bushels. The two working houses have a total receiving capacity of 250 cars per ten hours, and a shipping capacity into the vessels of 225,000 bushels per hour.

From the crop of 1904 the Canadian Northern Railway passed 7,024,550 bushels through its elevators, and from the crop of 1905, up to and including November 25th, the Company received into its elevators at Port Arthur 6,070,002 bushels.

The elevators of the Empire Elevator Company, limited, was constructed at Fort William in 1904 and completed December 1st of that year. The wooden working house of the elevator has a capacity of 500,000 bushels, and there is besides a fire-proof storage of a capacity of 1,250,000 bushels. The total amount of grain handled during 1904 is 5,000,000 bushels, and during 1905, up to November 30th, 6,000,000 bushels.

In 1904 and in 1905 a channel was dredged by the Department of Public Works along the face of the Empire Elevator Company's new dock. When completed this channel will be 140 feet in width and will have a depth of 22 feet below zero of the new gauge adopted in January, 1904. The channel of the River Kaministiquia from the Mission River to the Canadian Northern Railway coal dock at West Fort William has been widened and deepened in places where shoals were found. During the season of 1904, the sum of $91,508.92 was spent in this work by the Department of Public Works, and a further sum of $195,000.00 was appropriated for the season of 1905.

The Ogilvie Flour Mills Company, Limited, have started to erect at Fort William one of the largest flour mills in Canada, and several eastern concerns are negotiating for locations to start branch factories. It is expected that within the next few years there will be an industrial development at the head of the lakes, second to no other city in Canada.

15. THE WATER POWER AT KAKABECA FALLS.

Another factor of the development at Fort William and Port Arthur will be the availability of electric power from Kakabeca Falls, which the members of the sub-committee took occasion to visit.

Kakabeca Falls proper are situated about 16 miles from Fort William. For upwards of a mile above the actual falls, the river tumbles down a succession of rocky inclines, forming the Ecarte Rapids, at the head of which a company, composed of Montreal capitalists, has constructed the intake of its power canal.

Skirting the valley of the river on its northern bank, the Canadian Northern Railway passes within a quarter of a mile of the falls. The Power Company has been engaged during the whole summer of 1905 in the harnessing of the river as follows:—

From above the Ecarte Rapids a gigantic circular flume or aqueduct is being laid at an elevation which will add another forty feet to the hundred and twenty of the falls, while the lower rapids, below which the turbines are being placed, will add yet another twenty feet, giving a total head of no less than one hundred and eighty feet, higher than all but one of the heads of water at the power development at Niagara, and only falling short of that one by a small space that could be measured by inches. The aqueduct is a huge tube of concrete, ten feet in its inside diameter, the whole structure being strongly reinforced with hoops of steel and bars running in a longitudinal direction, forming a network of steel of six-inch mesh, imbedded in solid concrete. The construction of this aqueduct is unique in American engineering, the only others of a somewhat similar kind being built in France, so that the successful completion of this work may prove to be an important epoch in the solution of engineering problems relating to water-power development.

From the point of intake to the outlet into the main reservoir, which is on the brow of a steep ridge overlooking the site of the power house, 180 feet below, this pipe lies practically level for a distance of 7,000 feet, and after being discharged into the reservoir the water is divided and flows through two seven-foot penstocks, which run at a steep incline to the water wheels on the bank of the river.

The construction of the flume will require approximately 35,000 yards of concrete, and the progress of the works has been facilitated in the most material manner by the fact that the ground through which the big pipe runs is largely made of beds of gravel of an excellent quality for the making of concrete, so that the excavation of the shallow ditch in which it lies provides at the same time an important item in the material required for the building of the conduit. At its upper end it will traverse a rocky belt, and it is estimated that 35,000 cubic yards of rock will have to be removed here and the place where the power house is under construction.

Across the Kaministiquia, just below the intake, a dam is being thrown, 20 feet in height, there being already a depth of 14 feet in the river at this point. The design of this dam is such as to admit the passage of the maximum flow of water without materially affecting the levels of the upper reaches of the river when it is in flood, while retaining enough to keep the big flume filled to its capacity even when the stream is at its lowest.

The reservoir into which the flume discharges is a massive structure of

concrete and steel, from which are fed the two steel penstocks leading direct to the turbine wheels, 180 feet below. Each of these wheels will be capable of developing 7,000 horse-power, the initial development which is now under way being thus 14,000 horse-power.

The plans are, however, being prepared, and the work laid out so as to permit of this being doubled at any time by the building of a second flume and providing two additional penstocks, all the rest of the plant being capable of working to the double capacity. In fact, the present operations are intended to be merely the commencement of a water power development which will be on a very large scale, and the ultimate development may greatly exceed that here outlined, for, if the demand for power at the head of the lakes should exceed the 28,000 horse-power thus provided, there is ample reserve behind to duplicate it, and possibly to multiply this by two again.

From the power house at its point of generation, the electric energy will be transmitted to Fort William along a copper wire, at a pressure of 25,000 volts to the sub-station now being erected in the western end of the town, and from this it will be stepped down to any voltage that may be required by consumers. This sub-station is a plain but massive building of concrete and steel, with a floor area of 5,600 square feet and a height of 40 feet.

Construction on the harnessing of the river is being pushed ahead with even greater rapidity than was anticipated, and with an army of about 700 constantly employed through the winter, the Company will have the current transmitted to Fort William by June 1, 1906. A bargain has been struck with the town of Fort William, under the terms of which the town will get 600 horse-power at a flat rate of $25.00 per horse-power for a 20-hour service, and the Ogilvie Mills will be ready to use power by the spring of next year, the elevator of the Company being now operated by electrical power provided by the town plant and generated by steam.

How great will be the effect of this power development upon the future of Fort William as a manufacturing centre for all industries that are seeking to enter the growing markets of the great West, can be readily appreciated. Raw material can be delivered on the docks of Fort William as cheaply as at any port on the lake system, while the railway haul from this point to the places of consumption is short as compared to the distance from the factories of the East, and the rapid settlement of Manitoba and the Provinces of the West will, in the near future, make the West one of the most important markets for all kinds of manufactured articles in Canada.

After their visit in the harbors of Port Arthur and Fort William and the surrounding country, the members of the sub-committee went across to Duluth, leaving Fort William on Sunday evening, August 20th, on board the steamship "Huronic," of the Northwestern Navigation Company.

Arriving at Duluth the following morning, before noon, they visited the harbour of Duluth.

16. THE HARBOUR OF DULUTH.

The harbour of Duluth and the harbour of Superior are practically the same, and they include all navigable waters lying inside of Minnesota Point and along the fronts of the cities of Duluth and Superior to the city limits of each, embracing the new Duluth Canal, Superior Entry, Superior Bay, Allouez Bay, St. Louis Bay and St. Louis River as far westerly as the bounds of the city of Duluth.

Before improvement, the bays were broad expanses of shallow water with a general depth of only eight or nine feet, except along the channels, which were deeper but variable. The natural entrance to Superior Bay from Lake Superior, now called Superior Entry (also known as the Wisconsin entrance),

was a winding channel over a shifting sand bar, with an available depth of nine to 11 feet, and difficult to follow.

The United States commenced the work of improvement at Superior Entry in 1867, under a plan providing for building two parallel jetties across the bar and dredging a channel between them, and began operations at Duluth in 1871, under a plan providing for the extension of the breakwater commenced by the Northern Pacific Railroad just outside of the northerly end of Minnesota Point. The extension was completed for a distance of about 1,000 feet from shore, but the superstructure was destroyed by storms, leaving the cribs submerged.

The Duluth Canal was cut through Minnesota Point by the city of Duluth in 1870 and 1871, and in 1873 its maintenance and improvement were undertaken by the United States to provide an inner harbor of easy access in place of the exterior harbor, for the formation of which the breakwater had been constructed.

The latest approved project provides for the widening and deepening of channels to a navigable depth of 20 feet, for a new channel in Allouez Bay, a new channel in St. Louis Bay extending northerly, and a new channel in St. Louis River; for extensive turning and anchorage basins at the junction of various channels; for widening the Duluth Canal and rebuilding the piers; and for rebuilding the piers at Superior Entry. The work of widening the Duluth Canal and rebuilding the piers was completed in 1901. The extensive dredging contract, under which work was in progress for nearly six seasons, and which involved the removal of over 21,500,000 yards of material, was completed November 14, 1902.

The work of rebuilding the piers at Superior Entry was begun in the spring of 1903. There will be two new piers built of concrete, the south pier 2,960.5 feet, and the north pier 3,418.5 feet in length. The work in the seasons of 1903 and 1904 was upon the westerly half of the south pier, which is located about 70 feet south of and behind the old south pier, the old pier remaining in place while the new one is under construction. About 1,600 lineal feet of the new pier was completed at the close of the season of 1904. The operations of 1905 have been on this line and have not interfered in any way with navigation.

The new piers of the Duluth Canal, completed in 1900-01, are of equal dimensions, and the clear width between them at the entrance and for a distance of about 1,250 feet from the outer end is 300 feet, after which they flare out at the harbour end to a width of about 540 feet. Each has a length of about 1,700 feet, and projects about 2,150 feet beyond the shore line.

The foundation cribs extend 22 feet below low water datum and the concrete superstructure rises from 10 to 18 feet above that plane. Riprap has been placed along the base of the piers to prevent undermining by currents. Along channel faces of north and south piers is 16 to 23 feet of water over the riprap, dropping off rapidly to greater depths except for the outer 450 feet of channel face of south pier, where there was formerly a rock embankment; this embankment has been partially removed, leaving a depth of 11 to 16 feet close to the pier, a least depth of 17 feet at 20 feet out, and 23 feet at 33 feet out from pier. The clear width of channel with 23 feet least depth is about 240 feet; depth along mid-channel is at least 25 feet.

One of the principal attractions of the harbour of Duluth is the new Aerial ferry or suspended-car ferry over the Duluth Canal. The truss which spans the channel has a clear height of 138 feet above low water datum, 137 feet above ordinary high water, and about 135 feet above the highest recorded stage of water in the harbor. Any vessel on the Great Lakes can freely pass under the bridge. The car, which is suspended from a trolley or truck running on the overhead track and reaching down to within about 12 feet of the water, has

been completed and inaugurated last summer. The car is 50 feet long and 31 feet wide, is propelled by an electric motor, which is placed under the floor of the car and turns a drum from which cables lead up to the overhead truck and then along the bridge to either tower.

The car is large enough to carry at the same time street-car, teams and foot passengers, the motor is in duplicate, and two independent sources of electric current are available, either of which can be turned on quickly in case the other fails. There is a controller at each end of the car, and the operator is stationed at the forward end of the car. The time required for crossing the channel is 1½ minutes. There is an additional and independent hand gear for propelling the car in case of failure of the electric motor. This moves the car much more slowly, and is used only for the purpose of getting the car away from the channel in case of a breakdown.

The steel bridge is 393 feet long, and the bridge supports at the ground are 78 feet wide. This aerial bridge was completed in 1904, at an expense of $100,000. It is free to the public and it has a carrying capacity of 25,000 pounds.

17. THE PROPOSED WORKS OF THE MINNESOTA CANAL AND POWER COMPANY.

During their visit to Duluth, the members of the sub-committee had several interviews with persons and companies interested in the proposed works of the Minnesota Canal and Power Company at St. Paul and Minneapolis, parties also interested in the proposed undertaking of said Company were interviewed informally and valuable information was obtained.

At the height of land in St. Louis and Lake Counties, in northern Minnesota, the waters from Birch Lake and White Iron Lake, and the streams running out thereof, and the immense watershed thereof, run northward and ultimately into Rainy Lake, and from there into Rainy River, passing into the Lake of the Woods. The water from this source forms by computation seven per cent. of the water passing out of Rainy Lake over Alberton Falls at Koochiching. The water system of Rainy River and Lake of the Woods have long been established as a commercial highway. From the Canadian ports of Rat Portage and Fort Francis two large and well equipped passenger and freight lines ply daily during the season of navigation, forming the means of water communication between the Canadian ports of Rat Portage, Rainy River town, Boucherville, Barwick, Emo, Big Forks, Little Forks, Isherwood, Fort Francis, Bears Pass, Seine River and Mine Centre, and forming along a considerable part of such route the only vehicle of passenger and freight communication.

The most important section of the 200 miles of navigation is the Rainy River, flowing through what is rapidly becoming a thickly populated and prosperous valley for some 80 odd miles, with towns rapidly building up at close intervals on its banks, dependent almost wholly on the river route for their mercantile and manufacturing interests. The fine class of steamboats plying on this water is already, in certain portions of the summer, hampered by low water on the rapids and shoals of the river, and the proprietors of the regular steamboat lines have been earnestly petitioning for such improvement being made on the river as would remove such disability, a disability that compels the withdrawal, for considerable intervals during each summer, of some of the large and deeper draught steamboats. In view of the fact that navigation is already suffering for lack of adequate water in portions of Rainy River and in portions of Rainy Lake, the population of that district has learned with surprise and alarm that active steps had been taken by the Minnesota Canal and Power Company, of Duluth, Minnesota, to obtain the authorization of the Federal Government of the United States, through the Commissioner of the General

Land Office at Washington, to construct a dam or dams and canal to divert all the waters of Birch Lake and White Iron Lake watershed, hereinbefore referred to, into the Embarrass River, and by it into Lake Superior at Duluth, thus diverting from this long established international waterway of Rainy Lake and Rainy River a large proportion mentioned of its tributary waters. It is claimed that, if permission be given by the Federal Government of the United States to the project of the Minnesota Canal and Power Company, a disastrous injustice will be done to Canadian and American established navigation companies that are now using the water highway of Rainy Lake and Rainy River, and to the manufacturing towns along the river, both on the Canadian and United States sides.

It is claimed that the waters of Birch Lake and Birch River and White Iron Lake help to form the chain of lakes and rivers along the boundary which are referred to in the Webster-Ashburton Treaty, and which, by the terms of that treaty, are a public highway, free to the citizens and subjects of both countries. The scheme of the Minnesota Canal and Power Company is to take 600 cubic feet per second out of a total estimated average flow of 985 cubic feet per second. The minimum flow is estimated at 210 cubic feet per second. The quantity to be taken, 600 cubic feet per second, would be more than the natural flow during the greater part of the year.

The corporation of the town of Fort Francis on March 17, 1904, sent to the Minister of Marine and Fisheries of Canada a protest against the proposed undertaking of the Minnesota Canal and Power Company. This protest has been sent by the Canadian Government to the United States Government through the British Embassy at Washington.

On January 25, 1905, the Acting Secretary of State, F. B. Loomis, informed the Right Honourable Sir H. M. Durand, G. C. M. G., the British Ambassador at Washington, that the United States Secretary of the Interior had directed the Commissioner of the General Land Office, before whom the application of the Minnesota Canal and Power Company was pending, to suspend further action in the case until advised as to the result of the inquiry which was to be made by the International Water Boundary Commission. This clearly meant that, in the opinion of the United States Government then, the case of the Minnesota Canal and Power Company was to be investigated and reported upon by the International Waterways Commission. Later on, somewhere in the month of March, 1905, the Attorney-General of the United States, called upon to give his opinion on the construction to be put upon the Act of Congress authorizing the appointment of the Commission, stated in reference to the case of the St. John River, New Brunswick, that the jurisdiction of said Commission was limited to the system of the Great Lakes and the St. Lawrence River.

The members of the sub-committee informed the various parties they interviewed at Duluth, Minnesota, and at St. Paul and Minneapolis, that the Canadian section of the Commission was willing to take up the case of the Minnesota Canal and Power Company, according to instructions received by them from the Canadian Government, but that the American section had expressed doubts as to whether or not they had the power to deal with it.

18. WORKS OF THE ONTARIO AND MINNESOTA POWER COMPANY, KOOCHICHING FALLS.

Since the Minnesota Canal and Power Company made this application to the United States Secretary of the Interior, the Rainy River Development Company and the Ontario and Minnesota Power Company have constructed extensive works at Koochiching Falls for the purpose of improving navigation in Rainy Lake and Rainy River, with the expectation of using the power which will be developed for manufacturing purposes. The Ontario and Minnesota

Power Company, under a contract with the Ontario Government, had acquired the Canadian end of the Koochiching Falls, and a number of acres of shore land adjacent. They have obtained during the last session of Parliament an Act of Incorporation, being Chapter 139, and entitled "An Act respecting the Ontario and Minnesota Power Company."

By an Order-in-Council, approved by the Governor-General on September 10, 1905, the Minister of Public Works and the Government of Canada have approved the plans of the Ontario and Minnesota Power Company. The engineers of the Department of Public Works stated that in so far as the construction of the dam at Koochiching Falls is concerned, it will in no way interfere with navigation above or below the fall at Fort Francis, but will, in fact, be an improvement. The dangerous rapids, two miles above Fort Francis, will be flooded, thereby improving materially the navigation. The freshet waters stored in Rainy Lake could be let out, during the season of low water, thereby also considerably improving navigation of the river between Fort Francis and the Lake of the Woods. The only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to be constructed by the Company, and also by a clause in the Act of Incorporation of the Company, which makes all damages to lands caused by their works a charge to be borne by them.

The proposed works of the Minnesota Canal and Power Company would interfere with the works authorized by His Excellency the Governor-General-in-Council. It is expected that soon after the present session of Congress, the International Waterways Commission will take up this question.

19. THE HARBOUR OF CHICAGO, AND THE CHICAGO DRAINAGE CANAL.

The members of the sub-committee left St. Paul on Wednesday evening, August 23rd, for Chicago, in view of making a visit to the Chicago Drainage Canal, and a preliminary investigation on a question presented to the Commission at its meetings of June 14th and 15th in Toronto, viz.: "The effect of the diversion by the Chicago Drainage Canal of 10,000 cubic feet per second on the levels of Lakes Michigan, Huron, Erie and Ontario, and on the River St. Lawrence."

The first day of their visit to Chicago was spent in making an inspection of the harbour of Chicago and of the large improvement works constructed therein by the United States Government.

As stated in the reports of the Engineers of the United States War Department, the harbour of Chicago originally could be used by none but the smallest craft, and then only when temporarily deepened by scour due to freshets. Before improvement by the government, Chicago River made a sharp turn to the southward upon approaching the lake shore, to which it ran parallel for a considerable distance before emptying into the lake, being separated from the latter by a long, narrow sand spit.

The first improvement was undertaken by the government in 1833, and consisted in cutting through the sand spit at the point where the river made a sharp turn to the southward, in protecting the banks of this cut by pile pier revetments, which have been extended from time to time, and in aiding the natural scouring of the channel between the piers by dredging. In 1870, to provide a safe anchorage ground for vessels loaded for departure, but detained by gales, or for others seeking shelter at such times, also to provide facilities for relieving the over-crowded condition of the river, and to protect the wharfs and slips proposed to be constructed along the lake front between Randolph and Twelfth streets, the easterly breakwater was projected, and later the southerly breakwater. In 1878, to facilitate entrance to the harbor, and to provide a sheltered anchorage ground in deep water during severe northerly storms, the exterior breakwater was proposed. The works of improvement

include dredging harbor entrance and a portion of basin to a depth of from 21.8 to 22.8 feet; improving the piers at the mouth of the Chicago River, and extending the easterly, southerly, and exterior breakwaters.

The exterior breakwater is about a mile north-east of the entrance to the river; it is 5,413 feet long, 30 feet wide, and was constructed between 1880 and 1889 in water varying from 18 to 32 feet in depth. It has proved a decided benefit to navigation. The harbour of refuge between this breakwater and the entrance to the river has a depth of 18 to 32 feet. The easterly breakwater is about 4,037 feet long, with a shore return at the north end 300 feet long. The southerly breakwater begins about 750 feet south of the southerly end of the easterly breakwater, and is about 3,000 feet long. The easterly and southerly breakwaters, with the south pier to the north and the shore to the west, form the outer basin. The construction of the proposed wharfs and slips along the lake shore from Randolph street to Twelfth street, having been delayed from year to year by the lake front litigation, was finally abandoned,and a bulkhead was built in 1896 along the dock line established by the Secretary of War in August, 1871, and September, 1890; the area west of the bulkhead has been designated as a public park and is being gradually filled in, thereby reducing the area of the basin to 270 acres. Its length is about 7,300 feet, and its greatest width is about 2,000 feet The basin for 1,150 feet width along easterly breakwater and 3,000 feet length southward from south pier, has been dredged to 32.8 feet depth. The undredged portion of the basin is very irregular in depth, varying from 12 to 20 feet at low water.

Chicago is divided into three sections by the Chicago River with its two branches. This river is a mile long and presents a busy appearance with vessels docked all along its banks.

One of the interesting features of Chicago is the Drainage Canal, which unites the Chicago River and the Mississippi River system, and saves the lake from being polluted by the drainage of Chicago's sewerage system. This canal cost $34,000,000.

The following dimensions of the Drainage Canal are furnished by the officer in charge: Distance from mouth of Chicago River to junction of main channel of canal, with the west fork of south branch of Chicago River at Robert street, about six miles. Length of main channel, Robey street to controlling works at Lockport, 28.05 miles. Dimensions: Robey street to Summit, 7.8 miles, 110 feet wide at bottom, 198 feet wide at water line, with minimum depth of water, 22 feet; Summit to Willow Springs, 5.3 miles, 202 feet wide at bottom, 290 feet wide at water line, with 22 feet depth of water: at Willow Springs the channel narrows to the walled bottom, and rock cross-section, extending 14.95 miles to Lockport, 160 feet wide at bottom, 162 feet wide at top. This canal is not yet entirely completed. It was designed to take up eventually a volume of 10,000 cubic feet per second. This represents about five per cent. of the flow over Niagara Falls, which is about 222,400 cubic feet per second. The Chicago Drainage Canal, when completed, will, according to a calculation furnished by the Engineer of the Canadian Section of the Commission, lower the level of Lake Huron by six inches and the level of Lake Erie by four and a half inches. But the Chicago Drainage Canal takes now less than half of the volume originally contemplated.

The United States War Department, in its power of conserviency to protect the navigation in the Chicago river, has, December 5, 1901, limited the volume of water which can be taken through it into the Chicago Drainage Canal, to 250,000 cubic feet per minute throughout the 24 hours of the day, which is about 4,166 cubic feet per second. If the original plans of the Chicago Drainage Canal are carried out, and it seems likely that this will be done, it will eventually take out, as above stated, 10,000 cubic feet per second.

20. LAKE MICHIGAN

The city of Chicago has a frontage of thirty miles along the shore of Lake Michigan, which is the only one out of the five Great Lakes having its entire shores in United States territory.

The area of the water surface of Lake Michigan is 22,400 square miles, its drained area is 45,700 square miles, and the total area of its basin is 68,100 square miles. The average annual rainfall on Lake Michigan is 33 inches. The maximum depth recorded by the United States Lake Survey officers is 870 feet. The steamer track on the lake from Chicago to the Strait of Mackinac is 321 miles. The mean surface of the lake above mean tide at New York city during 45 years (1860-1904) is 581.35 feet. The standard high water (of 1858) above mean tide at New York city is 584.69 feet, and the standard low water above mean tide at New York city is 578.51. The mean surface of Lake Michigan below the mean surface of Lake Superior is 20.94 feet. The average date of opening of navigation at the Strait of Mackinac is the 17th of April, and the average date of closing of navigation at the same place is 9th of January.

The following list gives the monthly mean stages of the lake, above mean tide at New York city, during the year 1904:—

January	579.90 feet
February	579.86 "
March	580.14 "
April	580.59 "
May	580.95 "
June	580.34 "
July	581.38 "
August	581.23 "
September	581.19 "
October	581.05 "
November	580.75 "
December	580.37 "

The yearly mean stage in 1904 was 580.65 feet.

During the season of navigation of 1905 the monthly mean stages of Lake Michigan have been as follows:—

March	580.31 feet
April	580.60 "
May	581.03 "
June	581.36 "
July	581.49 "
August	581.46 "
September	581.40 "
October	580.94 "

Lake Michigan is navigable in winter. This navigation is of importance and is increasing.

At the present time there are the following regular winter lines of steamers:—
Two lines from Milwaukee to Racine and Chicago.
One line from Milwaukee to Sturgeon Bay Canal and intermediate ports.
One line from Milwaukee to Grand Haven.
One line from Milwaukee to Ludington.
One line from Manitowac to Ludington.
One line from Manitowac and Kewaunee to Frankfort.
One line from Frankfort to Manistique.

One line from Northport to Manistique.

Efforts have been made to maintain a regular winter line from Frankfort to Menominee via Sturgeon Bay Canal or "Death's Door," but as yet they have not proved successful.

21. DETROIT RIVER AND LIMEKILN CROSSING.

The members of the sub-committee left Chicago on Saturday, August 26th, for Detroit, so as to make an inspection of the Detroit River, which unites Lake St. Clair to Lake Erie.

After a visit to the office of the United States Lake Survey, in the Campau Building, where valuable information and important documents bearing on the work intrusted to the Commission, were obtained, a trip down the Detroit River was undertaken. First of all, it will not be out of place to give here a description of the river as furnished by the Engineers of the United States War Department at Detroit, viz.:—

"The Detroit River has two characteristic sections, the upper or undivided " portion, and the lower or divided portion. The upper or undivided portion " runs from Lake St. Clair to the head of Fighting Island, a distance, by steamer " track, of 13 miles. At this point the river is divided by islands into several " channels, which do not reunite at the mouth of the river. The distance " from the head of Fighting Island to Bar Point Shoal lightship by steamer " track is 15¼ miles, making the total distance from Lake St. Clair to Lake " Erie 28¼ miles."

The discharge through the upper or undivided portion of the river is 208,600 feet per second when Lake Erie is at a stage of 572.61 feet above mean tide at New York. The increase of the discharge per foot rise of the lake is approximately 21,000 cubic feet per second.

Throughout the upper portion of the river the mean current velocity is about 1½ miles per hour; but at Limekiln Crossing, near the mouth of the river, the mean velocity is about 2½ miles per hour, with a maximum velocity of about five miles per hour. For the northerly 16 miles the river bottom is of earth and the channel banks are usually quite steep, but at the southerly portion the river bottom consists mainly of bed rock and boulders, and the channel banks usually are more sloping. In the upper portion of the river there are two islands—Isle aux Peches and Belle Isle; there is deep water on each side of these islands.

Originally the channel at Limekiln Crossing could not be depended on for more than 13 feet of water, the ordinary depth being much affected by the direction of the wind. It was in 1874 that the United States Government started work of improvement at this point, and they consisted of a curved channel of 300 feet wide, with a uniform depth of 20 feet. In 1883 it was determined to modify the project so as to secure a straight channel, the least width of which should be 300 feet with a somewhat greater width at either end. In 1886 this was further modified so as to increase the width to 400 feet by removing an additional 100 feet from the western side. In 1888 a further additional width of 40 feet on the western side was authorized. This 440 foot channel was completed during the fiscal year ended June 30, 1891. The estimated cost of a 400 foot channel was $1,374,500. The total amount expended up to June 30, 1891, was $702,122.04 for a channel of 440 feet.

In 1899 the United States Congress made provisions in the River and Harbor Act for a channel of 21 feet deep from Detroit to Lake Erie. The distance from Detroit to deep water in Lake Erie is about 24 miles, but the section of the river, which required any considerable improvement to secure a safe and convenient channel 21 feet deep, was from near the upper end of Grosse Isle to the Detroit River lighthouse in Lake Erie. All improvements made up

to 1900 have been confined to this section of the river. The improved channel passed east of Grosse Island, Bois Blanc Island and was in Canadian waters according to the international boundary line established by the treaty of August 9, 1842. That channel was not a convenient one for the enormous commerce coming through it. The United States War Department decided to make further improvements, and in the River and Harbor Act of June 13, 1902, the works now in way of construction were authorized. The plan was to continue operations in the channel then under improvement, so as to complete it with a low water depth of 21 feet and a minimum width of 600 feet, the side line of excavation being so located as to make the channel as straight as practicable, and especially to eliminate the dangerous bends between the head of Limekiln Crossing and Bois Blanc Island. The width of the channel, when completed, will be 800 feet opposite Bar Point, and will be continued at that width out into Lake Erie. The cost of this excavation was at first estimated to be from $1,750,000 to $2,000,000; but the final estimate exceeds the original approximate estimate by nearly $2,000,000.

During the season of navigation of 1905 the Ballards reef channel had a clear depth of 21 feet and a width of 600 feet. At Limekiln Crossing the width of the channel available to navigation was 420 feet, with a least depth of 19 feet. In the Bois Blanc Range channel there was a clear depth of 20 feet and a width of 600 feet. The Amherstburg Beach channel has also a clear depth of 20 feet, but it is only 250 feet wide. The Hackett Range channel has a least depth of 19 feet, with a width of 500 feet for the greater part of its length. During the season of 1905 the west half of this channel was partly obstructed by improvements in progress. The Bay Point shoal channel extends to the Detroit River lighthouse and is 800 feet wide, with a depth of 20 feet.

The United States Government has proceeded with the improvement of the Detroit River without reference to the International boundary line between the United States and Canada, and this since 1874 to the present time. In 1892 and 1893 there were negotiations between the Government of Canada and the Government of the United States in regard to the improvement made by the United States Engineers at the Limekiln Crossing. Mr. W. J. Thompson, C. E., made, under the direction of the Minister of Railways and Canals, a report on the subject, and pointed out that the maps of the Commissioners appointed under the Treaty of Ghent (1814) place the improved channel at the Limekiln Crossing exclusively in Canadian waters. This view, however, was not adopted by the Chief of Engineers of the United States Army, who, in a report dated November 14, 1888, had already stated that "all the channels opened by the United States at the Limekiln Crossing were in American waters, except the extreme north-east and south-east corners of the cut." By Article VII. of the Treaty of 1842, it was provided as follows:—

"It is further agreed that the channels in the River St. Lawrence on both " sides of the Long Sault Islands and of Barnhardt's Island, the channel in " the River Detroit on both sides of the island of Bois Blanc, and between " that island and both the American and Canadian shores, and all the several " channels and passages between the various islands lying near the junction " of the River St. Clair, with the lake of that name, shall be equally free and " open for the ships, vessels and boats of both parties." This provision, while disposing by the concession of mutual rights in the channels of the difficulties of boundary at the islands named, does not affect the boundary line south of those islands, nor does it affect the Limekiln Crossing, which lies north of them. This is the view taken by the Canadian Government in 1893, when the United States Government made application to be allowed to proceed with the improvement of the Limekiln Crossing in Canadian waters. The Government of Canada in 1875 had itself assisted to the extent of $5,000 in the works of improving the navigation of Detroit River, and on August 8, 1893, the Governor-

General-in-Council gave authority to the United States to proceed with the work of removing obstructions in the river, irrespective of the boundary line, such authority to be understood expressly as being given without prejudice to the possessory rights of Canada as defined by the maps and declarations of the Commissioners under the Treaty of Ghent. This makes of the Limekiln Crossing a channel common to both countries.

In concluding, it might be interesting to give a comparison between the freight traffic of the Detroit River, the Soo and Welland Canals.

In regard to the traffic of the Detroit River, it may be said that it has been comparatively measured, for the first time, during the past season of navigation. The compilation of the figures is founded on reports of masters of vessels, which are filed with the United States Department of Commerce and Labour through its Bureau of Statistics, and it covers the season of lake navigation of the calendar year 1905. The results are shown as follows:—

Month.	South Net Tons.	North Net Tons.	Total Net Tons.
April	1,575,877	792,711	2,368,588
May	4,551,972	1,352,524	5,904,496
June	5,523,021	1,780,541	7,303,562
July	5,911,625	1,941,534	7,853,159
August	6,300,003	2,314,810	8,614,813
September	4,597,640	1,493,059	6,090,699
October	5,582,689	1,522,905	7,105,594
November	4,593,752	1,578,375	6,172,127
December	1,354,506	871,542	2,226,048
	39,991,085	13,648,001	53,639,086

The southbound movement is nearly three times as great as that in the opposite direction. This is largely due to the enormous eastbound tonnage of iron ore from upper lake ports to ports along the southern shore of Lake Erie, whence it is shipped by rail to the great iron and steel districts of southern Pennsylvania. The freight carried in a southerly direction through Detroit River during the past season of lake navigation is divided as follows:—

Flour	3,176,928 tons.
Ore and minerals, exclusive of coal, of which there was no southbound movement	32,900,685 tons.
Lumber	1,851,324 tons.
Unclassified freight	971,151 tons.

The northbound movement is divided as follows:—

Coal	11,928,158 tons.
Grain and flax seed	6,178 tons.
Ore and minerals	415,533 tons.
Lumber	11,940 tons.
Unclassified freight	1,286,192 tons.

The traffic through the Soo Canals, which connect Lake Superior with the other Great Lakes, and through the Welland Canal, which performs the same duty for Lake Ontario, has largely increased during the past season of navigation.

Here follows a statement showing the traffic through the Canals at Sault Ste. Marie, for the years 1896 to 1905, inclusive:—

Season.	South Net Tons.	North Net Tons.	Total Net Tons.
1896	.....	.....	16,239,061
1897	.....	.....	18,982,755
1898	.....	.....	21,234,664
1899	20,619,534	4,636,276	25,255,810
1900	20,532,493	5,110,580	25,643,075
1901	23,087,742	5,315,323	28,403,065
1902	30,275,989	5,685,157	35,961,146
1903	26,932,238	7,742,199	34,674,437
1904	24,213,902	7,332,204	31,546,106
1905	36,778,738	7,491,942	44,270,680

During the season of lake navigation of the calendar year 1905, the total freight movement through the United States Canal amounted to 38,802,190 tons, while that through the Canadian Canal totaled 5,468,490 tons.

It will be seen that, during the lake season of 1905, the difference between the amount of freight carried, respectively, through the Detroit River and the two Soo Canals is 9,368,406 tons in favor of the former. This may be said to represent, at least with a fair degree of accuracy, the traffic through the Straits of Mackinac, which consists largely of shipments of grain and flour from Chicago and iron ore from Escanaba, while the west bound cargoes consist largely of coal and package freight.

The following table represents the volume of traffic between Lake Erie and Lake Ontario by way of the Canadian Welland Canal, which runs parallel with the Niagara River:—

Season.	Down Tons.	Up Tons.	Total Tons.
1894	745,942	243,592	989,534
1895	621,926	230,100	852,026
1896	957,928	285,667	1,243,595
1897	1,026,458	218,292	1,244,750
1898	902,590	218,211	1,120,730
1899	622,104	147,514	769,618
1900	579,312	109,245	688,557
1901	501,935	89,311	591,236
1902	567,286	78,811	646,097
1903	715,595	263,212	979,807
1904	620,078	182,402	802,480
1905	848,007	227,961	1,075,968

Respectfully submitted,
(Signed) THOMAS CÔTÉ,
Secretary.

Ottawa, Dec. 1, 1905.

INTERIM REPORT

OF THE

AMERICAN SECTION

APPENDIX "A1".

INTERNATIONAL WATERWAYS COMMISSION

(Office of American Section)

328 Federal Building,
Buffalo, N. Y., December 1, 1905.

Mr. Secretary,—1. The American section of the International Waterways Commission has the honor to submit the following progress report:

2. The River and Harbour Act, approved June 13, 1902, contained the following provision, viz:—

"Section 4. That the President of the United States is hereby requested " to invite the Government of Great Britain to join in the formation of an inter- " national commission, to be composed of three members from the United States " and three who shall represent the interests of the Dominion of Canada, whose " duty it shall be to investigate and report upon the conditions and uses of the " waters adjacent to the boundary lines between the United States and Canada, " including all of the waters of the lakes and rivers whose natural outlet is by " the River St. Lawrence to the Atlantic Ocean; also upon the maintenance " and regulation of suitable levels, and also upon the effect upon the shores of " these waters and the structures thereon, and upon the interests of navigation " by reason of the diversion of these waters from or change in their natural flow; " and, further, to report upon the necessary measures to regulate such diversion, " and to make such recommendations for improvements and regulations as " shall best subserve the interests of navigation in said waters. The said Com- " missioners shall report upon the advisability of locating a dam at the outlet " of Lake Erie, with a view to determining whether such dam will benefit navi- " gation, and if such structure is deemed advisable, shall make recommendations " to their respective Governments looking to an agreement or treaty which " shall provide for the construction of the same, and they shall make an estimate " of the probable cost thereof. The President, in selecting the three members " of said Commission who shall represent the United States, is authorized to " appoint one officer of the Corps of Engineers of the United States Army, one " civil engineer well versed in the hydraulics of the Great Lakes, and one lawyer " of experience in questions of international and riparian law, and said Com- " mission shall be authorized to employ such persons as it may deem needful " in the performance of the duties hereby imposed; and for the purpose of paying " the expenses and salaries of said Commission, the Secretary of War is authorized " to expend from the amounts heretofore appropriated for the St. Marys River " at the Falls the sum of twenty thousand dollars, or so much thereof as may " be necessary to pay that portion of the expenses of said Commission chargeable " to the United States."

3. The invitation here authorized was duly communicated to the Government of Great Britain by the American Ambassador in London by letter dated July 15, 1902 (copy appended, marked "A", page 19), and was accepted by letter from the British Foreign Office, dated June 2, 1903. The American members were appointed October 2, 1903; they were Colonel O. H. Ernst, Corps of Engineers, United States Army; Mr. George Clinton, of Buffalo, N. Y., and Prof. Gardner S. Williams, of Ithaca, N. Y. The Canadian members were appointed on January 7, 1905; they were Mr. W. F. King, Chief Astronomer, of Ottawa; Mr. J. P. Mabee, K. C., of Toronto, and Mr. Louis Coste, C. E., of Ottawa.

4. The American section held its first meeting in Washington, D. C., May 10, 1905, and organized by the election of Colonel Ernst as chairman. The scope of the investigations to be undertaken was defined in a letter from the

Department of State, dated April 15, 1905 (copy appended, marked "K", page 23), from which the following is an extract, viz.:—

"The wording of the law will be seen by reference to the inclosed copy. " The Department's opinion is that the words, 'including all of the waters of " 'the lakes and rivers whose natural outlet is by the River St. Lawrence to the " 'Atlantic Ocean,' are intended as a limitation on what precedes them, and " that the investigation and report should only cover such waters, omitting " the lower St. Lawrence itself, as well as all other waters not discharging natur- " ally through it.

"The broader interpretation given to the Act by the Canadian authorities " should be rejected, if for no other reason, on account of the smallness of the " appropriation for the support of the American section. Congress could hardly " have intended to provide, with a sum of $20,000, for the expenses incident to " an investigation extending to the Pacific Coast, and possibly embracing the " Alaskan boundary as well."

It was learned informally that the British Government objected to this limited interpretation of the law and had requested a reconsideration of the question, and that the matter had been referred to the Attorney-General. In a conference with the Honourable Secretary of War, it was decided that the work of the Commission should be under the War Department. It was also decided to invite the Canadian members to join in the first full meeting of the Commission in this city, to be held May 25, and an invitation was issued accordingly by the Department of State at the request of the Secretary of War.

5. On the 25th of May the full Commission held its first meeting in this city, and organized by the election of Colonel Ernst as chairman of that meeting, it being agreed that at meetings of the full Commission held on American territory the chairman of the American section should preside, and at meetings held on Canadian territory the chairman of the Canadian section should preside. The Commission remained in session during the 25th and the following day, discussing the organization, permanent place of meeting, and scope of their duties. It was decided that for the present the offices of the Canadian section should be established in Toronto, and those of the American section in Buffalo, and that full meetings should be held in one or the other city, as should be found most convenient.

6. The American section, having presented the instructions under which they were acting, quoted above, the Canadian section presented the following memorandum, viz.:—

"The Canadian members of the International Waterways Commission had " understood the scope of the Commission to be wider than the American mem- " bers regard it, and that any misunderstanding may be avoided desire briefly " to state the position they have understood matters to be in.

"The invitation to His Majesty's Government, through the American " Ambassador in London, was 'for the appointment of an international com- " 'mission, to be composed of three members from the United States and three " 'who shall represent the Dominion of Canada, whose duty it shall be to in- " 'vestigate in general the waters adjacent to the boundary line between the " 'United States and Canada, the effect upon the shores produced by changes in " 'the water levels, and the erection and location of a dam at the outlet of Lake " 'Erie.'

"In due course, by a report of the Committee of the Privy Council of Canada, " approved by the Governor-General of Canada, it was resolved 'that His " 'Majesty's Government accept the invitation to co-operate in the formation " 'of the Commission.' This report, after further reciting that as the subjects " to be dealt with pertained to 'the regulations of the waters adjacent to the " 'international boundary,' the matter, in so far as Canada was concerned, should " be under the Department of the Interior and the Department of Public Works.

"Some regrettable but unavoidable delay in completing the Canadian " section of the Commission arose by the long-continued illness of the Honourable " the Minister of Public Works for Canada.

"In the dispatch to the Government of Great Britain naming the American " Commissioners, the invitation to His Majesty's Government is again recited " as being one to form an international commission to investigate and report " upon the conditions and uses of the waters adjacent to the boundary lines " between the United States and Canada.

"After the appointment of the Canadian Commissioners, the Prime Minister " of Canada, Sir Wilfrid Laurier, in communicating the matter to the Canadian " House of Commons, in January last, dealt with the subject-matter of the Com- " mission as covering all waters adjacent to the boundaries of the two countries, " and in the course of his speech made the following statements: 'In sections " 'of the country where the boundary is not water, but land, there are streams " 'and large rivers which have their sources in one country and which flow into " 'another. Complaint has been made by the United States that Canadians " 'have constructed some works upon rivers which have their sources in Canada " 'and which flow into the United States, and that these works affect the flow " 'of the waters in their country. We also have made complaints to the United " 'States that Americans have constructed upon some rivers, the St. John River, " 'for instance, works which affect the flow of the waters in our country. It is, " 'therefore, to the mutual interest and advantage of both countries to have this " 'question properly investigated with a view of having concurrent legislation, " 'if such should be found necessary. From olden times it has been a principle " 'of Roman law, which has been adopted by most civilized nations, that the " 'riparian owner of any stream has the right to use the water of that stream " 'for his own benefit, provided he does not impair the flow of the water beyond " 'the boundary of his property. This is a principle of law which dominates in " 'almost every country; but it is not possible to have this principle followed " 'and carried out when the works are in one country and the boundary of the " 'property is in another country. For these reasons we have thought it advis- " 'able to respond to the invitation of the United States to have this question " 'investigated. We have agreed to a Commission to be composed of six mem- " 'bers, three to represent the Government of the United States and three to " 'represent the Government of Canada.'

"If the inquiries of the Commission are to be limited to the waters of the " Great Lakes only, it would seem that the Government of Canada has been " under misapprehension as to the desires and intentions of the Government " of the United States, and we regard it as our duty to report to our Government " the limitations expected to be placed upon the scope of the Commission, and " we respectfully suggest that further action should be delayed until we may be " advised of the views of the Government of Canada upon the premises."

7. The chairman of the American section stated that he was informed that the British Government had communicated with the American Government, through diplomatic channels, requesting that the broader interpretation above described be given to the law of Congress providing for the Commission, and that the American Government then had the matter under consideration, but that some days would probably elapse before a decision could be expected. It was then decided that further proceedings be deferred until further instructions be received from the two Governments. It was agreed that the decision of the American Government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favorable to the Canadian interpretation of the law, or if it be unfavorable, and be accepted by the Canadian Government, then a meeting of the Commission should be called on Canadian territory by the chairman of the Canadian section at as early a date as the other duties of the members would permit.

8. The decision of our Government was given in a letter dated May 31, 1905, from the Department of State to the British Ambassador at this capital (copy appended, marked "E", page 28), and was in effect to leave the instructions to the American members unaltered. It was immediately communicated to the Canadian section by letter, dated June 2, 1905 (copy appended, marked "R", page 31), and was by them laid before the Canadian Government, which Government, after due consideration, authorized the Canadian members to proceed with the work of the Commission within the field prescribed to the American members. See letter from the chairman of the Canadian section, dated June 7, 1905 (copy appended, marked "S", page 32).

9. The American section then proceeded to complete its organization. Through the courtesy of the Honourable Secretary of the Treasury, excellent quarters in the Federal Building in Buffalo were assigned to its use, completely furnished and arranged with temporary partitions to suit its convenience in every respect. These rooms became available September 11. The section was fortunate enough to secure the services as secretary of Mr. L. C. Sabin, a hydraulic engineer of many years experience on the Great Lakes in the service of the Government. He reported for duty August 1. Professor Williams, finding that business engagements, contracted since his appointment in October, 1903, would interfere with his performance of duty as a member of the Commission, tendered his resignation, and was replaced by Mr. G. Y. Wisner, civil engineer, appointed June 8, 1905.

10. The full Commission held its second meeting at Toronto, June 14 and 15, 1905. Among the questions brought to the attention of the Commission at this meeting were the following, viz:—

(a) The uses of the waters at Sault Ste. Marie for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries and the protection of the navigation interests.

(b) The uses of the waters in the Niagara River for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries, and the protection of Niagara Falls as a scenic spectacle.

(c) The alleged differences in the marine regulations of the two countries with respect to signal lights, and the advisability of adopting uniform signals for both countries.

(d) The advisability of building controlling works at the outlet of Lake Erie, including the effect upon the levels of the lakes and upon their shores, and upon the River St. Lawrence.

(e) The diversion southward by the Minnesota Canal and Power Company, of Duluth, of certain waters in the State of Minnesota that now flow north into the Rainy River and the Lake of the Woods.

(f) The effect of the Chicago Drainage Canal upon the levels of Lakes Michigan, Huron, Erie and Ontario, and upon the River St. Lawrence.

(g) Delimiting the international boundary on the international waterways and delineating the same on modern charts.

11. At subsequent meetings the following additional questions were brought to the attention of the Commission, viz.:—

(h) The suppression or abatement of illegal fishing on the Great Lakes.

(i) The location and construction of common channels.

(j) Regulations to govern navigation in narrow channels.

(k) Protection of shores from damages due to deepening of channels and increased speed.

12. It was immediately evident that, in addition to collecting the data known to exist bearing upon these questions, it would be expedient for the Commission to make its existence known to the persons most interested in the international waterways, to receive suggestions from them, and to visit in person

some or all of the principal localities concerned, giving public hearings where such hearings were desired by the local business interests.

13. On the 7th of July the Commission paid a visit of courtesy to the Canadian Government, at Ottawa, and were the recipients of many graceful attentions from the authorities. Between the 9th and 13th of July the Commission passed over the St. Lawrence River and Canals from Quebec to Kingston, using the steamer "Frontenac," kindly placed at their disposal by the Canadian Government. During August, a majority of its members visited the Detroit, St. Clair and St. Marys Rivers, and the Sault Ste. Marie Between the 11th and 14th of September, the full Commission made an inspection of the outlet of Lake Erie, including Buffalo Harbour and Niagara River above the Falls, and of the water-power development at Niagara Falls. Public hearings were held at Montreal, July 11; at Kingston, July 13; at Niagara Falls, September 14; at Toronto, September 15; at Hamilton, Ontario, September 16; and at Buffalo, November 10.

14. The meetings of the full Commission were held at Buffalo, October 27 and 28, and November 10 and 11. To enable all persons to appear before the Commission or to address it, who desire to do so, public notice of all meetings is given as long in advance as possible, through the press of the principal cities of the Great Lakes and St. Lawrence system.

15. Of all the questions brought to the attention of the Commission, those most pressing for consideration were the questions relating to the uses of water at the Sault Ste. Marie. The situation there, in brief, is this: The volume of water flowing out of Lake Superior is, at normal low water elevation 601, about 64,000 cubic feet per second. Lower stages and a lower discharge have sometimes occurred. On either side of the rapids is a navigation canal, constructed by the United States and Canadian Governments, respectively.

The traffic through these canals has reached enormous proportions and is increasing. It is larger this year than ever before, and will greatly exceed 40,000,000 tons for the year. The quantity of water consumed in the operation of the canals during the eight months of navigation is about 1,200 cubic feet per second. The quantity required in the future will be greater. Not less than 4,000 cubic feet should be unconditionally reserved for canal uses, and in granting power privileges, the respective Governments should not forfeit the right to increase the amount indefinitely. It may be remarked, in passing, that raft navigation over the rapids has so greatly diminished and it is now so small in amount that the quantities of water above mentioned will suffice to provide for it. This leaves about 60,000 cubic feet which may be temporarily used for power purposes.

16. On the Canadian side the Lake Superior Power Company has a power canal in operation which has a capacity of about 9,000, and is using about 7,000 cubic feet per second. This Company has designed an additional canal, not yet constructed, which will have a capacity of about 23,000 cubic feet per second. On the American side the Michigan Lake Superior Power Company has in operation a power canal, which has a capacity of about 31,000, and is using about 8,500 cubic feet per second. This canal takes the water from the St. Marys River above the rapids, conducts it through the city of Sault Ste. Marie, Michigan, and empties it about a mile below the rapids. On the American side also the Chandler-Dunbar Company, owning a portion of the shore line adjoining the rapids, have in operation power works using about 1,400 cubic feet per second. This Company is engaged in altering and improving its works in the bed of the stream, under revocable permits from the War Department.

Under permits thus far granted, the consumption of water will be increased to about 3,000 cubic feet per second, but in March, 1902, the Company applied for a permit to build a dike downstream from the fourth pier, counting from the American side of the international bridge in a direction nearly parallel

with the shore, to connect with a power house extending out an equal distance into the stream. A rival company, the St. Marys Power Company, applied in March, 1903, for permission to construct a power canal by means of two parallel dikes extending downstream and a short distance upstream, from the third and fifth piers of the bridge, with corresponding power house. Neither of these latter requests was granted, but they show what the intentions of the companies are, if they be permitted to carry them out Evidently there is not water enough to carry out all of these schemes. An understanding must be reached by which there shall be an equitable division of the surplus water between the two sides of the boundary. The division between rival companies, fortunately for the Commission, may be left to the courts of law.

17. The applications to the War Department of the United States from the American companies for further privileges and an application from the Lake Superior Power Company to the Canadian Government for additional authority, led the Commission, at its session of October 28, to pass the following resolution, of which copies were sent to the Secretary of War of the United States and the Minister of Public Works of Canada, viz.:—

"RESOLVED, That in the opinion of the Commission, no further rights " or privileges should be granted or conferred regarding the uses or diversions " of the water flowing out of Lake Superior, by either the Government of the " United States or Canada, until all data and information are in the hands of " the Commission that may be necessary to enable it to make suggestions for " regulating the excess of these waters, or that, if such rights or privileges be " granted, they be subject to any regulations that may be adopted by both " Governments."

18. The use of water for power purposes must be so regulated as not to affect injuriously the level of Lake Superior. On the one hand, the level must never be allowed to fall so low as to injure navigation; and on the other hand, it must never be raised so high as to submerge the shores.

19. The Act of Congress, approved June 13, 1902, authorized the Michigan Lake Superior Power Company to divert water from St. Marys River above the rapids, with certain conditions, among which is the following, viz.:—

"And conditioned further, that said Company shall establish, maintain, " and operate suitable and sufficient remedial and controlling works in the " rapids of said river, to the approval of the Secretary of War and the Chief of " Engineers; and said Company shall maintain and operate said canal and " works in accordance with any rules and regulations that may hereafter be " recommended by any international commission and that shall become opera- " tive."

A full copy of the proviso will be found at page 11. In this legislation the principles were recognized that the use of the water was not granted in any fixed quantity nor for any fixed length of time, but that the Secretary of War could enter upon the property and close the canal in whole or in part at any time to the extent necessary to maintain water levels; also that it should finally be regulated by an international commission.

In granting permission to the Company under this Act to divert water, the Secretary of War established, December 2, 1902, certain regulations (copy appended, marked "T", page 33), which are still in force and which will probably be used by this Commission as a foundation in framing the regulations to be recommended. The fundamental principles on which they are based, and which this Commission believes to be sound, are: (1) levels must be maintained; (2) navigation must be protected; (3) the public must reserve the right to use any portion or all of the natural flow in the future.

20. A public hearing, at which the parties in interest were given an opportunity to be heard, was held in Buffalo, November 10, and at its session of

November 11, 1905, the Commission tentatively adopted certain rules and regulations, which it is hoped can be forwarded for approval at an early day.

21. The enforcement of these rules and regulations calls for the executive action from time to time of an international commission. The enforcement of rules to be established hereafter at other places or upon other subjects will probably likewise require joint executive action. It is not clear from the language of the law creating this Commission that Congress intended to provide for a permanent international board. It is desirable that the status of the present Commission as a permanent executive board be defined, or a new board be created.

22. The questions which have been brought to the attention of this Commission, enumerated above in paragraphs 10 and 11, cover a wide range of subjects. Some of them clearly come under the jurisdiction of the Commission as constituted, while some do not, and about others there is room for doubt. The Canadian members of the Commission are ready and anxious to consider all of these questions and to extend the jurisdiction of the Commission to all international waters between the Atlantic and Pacific Oceans. It is desirable that the wishes of Congress in this mater be more clearly defined.

23. Since it completed its organization in September, the Commission has made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls, and to the regulation of the level of Lake Erie by works near its outlet. With reference to the former, although not ready to report, it thought proper to pass, at its session of October 28, the following resolution, of which copies were sent to the Secretary of War of the United States, and the Minister of Public Works of Canada, viz.:—

"RESOLVED, That this Commission recommends to the Governments " of the United States and Canada that such steps as they may regard as neces- " sary be taken to prevent any corporate rights or franchises being granted or " renewed by either Federal, State or Provincial authority for the use of the " waters of the Niagara River for power or other purposes, until this Commission " is able to collect the information necessary to enable it to report fully upon " the 'conditions and uses' of those waters to the respective Governments of " the United States and Canada."

24. To enable it to continue its investigations, an additional appropriation will be required. Very respectfully,

(Signed) O. H. ERNST, *Chairman, American Section.*
(Signed) GEORGE CLINTON,
(Signed) GEORGE Y. WISNER. *Members, American Section.*

HON. WM. H. TAFT, Secretary of War, Washington, D. C.

RETURN

(19c.)

From the International Waterways Commission on conditions as to Niagara Falls, and their recommendations in relation thereto. Also Report of the Commission upon conditions existing at Sault Ste. Marie, with rules for the control of the same recommended by the Commission.

BUFFALO, N.Y., May 3, 1906.

The Honourable the Minister of Public Works of Canada, and
The Honourable the Secretary of War of the United States.

The International Waterways Commission has the honour to submit the following report upon the preservation of Niagara Falls:—

The Commission has made a thorough investigation of the conditions existing at Niagara Falls, and the two Sections have presented reports to their respective Governments setting forth these conditions to which attention is invited. The following views and recommendations are based upon a careful study of the facts and conditions set forth in these reports.

1. In the opinion of the Commission, it would be a sacrilege to destroy the scenic effect of Niagara Falls.

2. While the Commission are not fully agreed as to the effect of diversions of water from Niagara Falls, all are of the opinion that more than 36,000 cubic feet per second on the Canadian side of the Niagara River or on the Niagara Peninsula, and 18,500 cubic feet per second on the American side of the Niagara River, including diversions for power purposes on the Erie canal, cannot be diverted without injury to Niagara Falls as a whole.

3. The Commission therefore recommend that such diversion, exclusive of water required for domestic use or the service of locks in navigation canals, be limited on the Canadian side to 36,000 cubic feet per second, and on the United States side to 18,500 cubic feet per second, and in addition thereto a diversion for sanitary purposes not to exceed 10,000 cubic feet per second be authorized for the Chicago Drainage Canal, and that a treaty or legislation be had limiting these diversions to the quantities mentioned.

The effect of the diversion of water by the Chicago Drainage Canal upon the general navigation interests of the Great Lakes System will be considered in a separate report.

The Canadian Section, while assenting to the above conclusions, did so upon the understanding that in connection therewith should be expressed their view that any treaty or arrangement as to the preservation of Niagara Falls should be limited to the term of twenty-five years, and should also establish the principles applicable to all diversions or uses of waters adjacent to the international boundary and of all streams which flow across the boundary.

The following principles are suggested:—

1. In all navigable waters the use for navigation purposes is of primary and paramount right. The Great Lakes System on the boundary between the United States and Canada and finding its outlet by the St. Lawrence to the sea should be maintained in its integrity.

2. Permanent or complete diversions of navigable waters or their tributary streams, should only be permitted for domestic purposes and for the use of locks in navigation canals.

3. Diversions can be permitted of a temporary character where the water is taken and returned again, when such diversions do not interfere in any way with the interests of navigation. In such cases each country is to have a right to diversion in equal quantities.

4. No obstruction or diversion shall be permitted in or upon any navigable water crossing the boundary or in or from streams tributary thereto, which would injuriously affect navigation in either country.

5. Each country shall have the right of diversion for irrigation or extraordinary purposes in equal quantities of the waters of non-navigable streams crossing the international boundary.

6. A permanent joint Commission can deal much more satisfactorily with the settlement of all disputes arising as to the application of these principles, and should be appointed.

The American members are of opinioin that the enunciation of principles to govern the making of a general treaty is not within the scope of their functions; moreover the jurisdiction of the American members is restricted to the Great Lakes System.

GEORGE C. GIBBONS,
Chairman, Canadian Section.

O. H. ERNST,
Colonel, Corps of Engineers, U.S.A.,
Chairman, American Section.

W. F. KING,
Commissioner.

GEORGE CLINTON,
Commissioner.

LOUIS COSTE,
Commissioner.

GEORGE Y. WISNER,
Commissioner.

THOMAS COTE,
Secretary, Canadian Section.

L. C. SABIN,
Secretary, American Section.

REPORT UPON THE CONDITIONS EXISTING AT SAULT STE. MARIE, WITH RULES FOR THE CONTROL OF THE SAME, RECOMMENDED BY THE INTERNATIONAL WATERWAYS COMMISSION.

BUFFALO, N.Y., May 3, 1906.

The Honourable the Minister of Public Works of Canada, and
The Honourable the Secretary of War of the United States.

The International Waterways Commission has the honour to submit the following report upon the conditions existing at Sault Ste. Marie, with rules for the control of the same.

Upon the organization of the International Waterways Commission it found the most pressing matter coming within its jurisdiction was the regulation of the use by private corporations of the waters of St. Marys River in connection with the control of those waters for the protection of navigation at present and in the future. The Commission, therefore, proceeded to an investigation of the local conditions by special committee, and the study of all data obtainable. After thorough consideration of all the information which could be obtained, and after hearing all parties interested in the use of the waters at Sault Ste. Marie, including navigation interests, the Commission is satisfied that the rules recommended herein, governing the use, or interference with the natural flow, of these waters, will do entire justice to private interests, and, at the same time, fully protect commerce and navigation.

The extent of the commerce on the Great Lakes is well illustrated by the official statistics of the amount of freight which passed the locks at Sault Ste. Marie during the season of navigation of 1905, which amounted to more than forty-four million net tons. To this should be added the local tonnage, which is considerable, and the large traffic between ports on Lakes Michigan and Huron and the east, making a total lake traffic of between fifty and sixty million tons. The immense importance of transportation by the Great Lakes, and the consequent necessity of protecting and facilitating it in the interest of the public, becomes apparent when we consider that the ability to transport by lake must have resulted, during the season of 1905, in saving many millions of dollars. The average rate for transportation of Lake Superior freights in 1905 was $·00085 per ton-mile, while from the best information obtainable the transportation rate by rail between Lake Superior points and the east is not less than $·004 per ton-mile. The ton-mile saving over railroad tranportation was, therefore, at least $·00315. The average haul of the freight mentioned was eight hundred thirty-three and three-tenths miles. The total number of tons of freight that passed the Sault locks in 1905 was 44,270,680, and it follows that in this year there was an aggregate saving through lake transportation on Lake Superior through freight alone, of approximately $116,000,000. In other words, by transporting the Lake Superior freight on the Great Lakes, $116,000,000 were saved, in 1905, to the producers of raw materials, the manufacturer and the consumer, and the saving to manufacturers has made it possible for them to supply the home markets and compete in those of foreign countries.

The growth of commerce upon the Great Lakes in the past few years, and its prospective immense increase in the future, has convinced the Commission that steps should be taken, not merely to preserve the lake levels, but to retain absolute control of all waters which go to maintain those levels and of all lands which may be useful or necessary, at present or in the future, to increase navigation facilities. The Commission is, therefore, decidedly of the opinion that the Governments of the United States and Canada should act in unison in controlling, absolutely, any and all diversions at Sault Ste. Marie, so that the waters of the river may be available at any time when needed for navigation.

ST. MARYS RIVER.

Our investigation of conditions at Sault Ste. Marie developed the following facts:—

The St. Marys River forms the connecting channel between Lake Superior and Lake Huron. In its length of sixty-four miles, the total fall has varied, in recent years from 21 to 23 feet; of this total fall, from 18 to 20 feet is found in a distance of three-fourths of a mile at the rapids at Sault Ste. Marie. The entire run-off of the Lake Superior drainage basin, having an area of 76,100 square miles, passes the St. Marys River, giving an average discharge of about 70,000 cubic feet of water per second. As this river forms the only means of water communication between the important industries of the Lake Superior regions and the eastern markets, the advisability of its improvement for navigation purposes was early recognized. In 1855 the first canal and lock capable of passing lake vessels was completed at a cost of about one million dollars. There were two tandem locks, each seventy feet wide, three hundred and fifty feet long, having a lift of about nine feet each, with a depth of eleven and one-half feet of water on the mitre-sills. The great increase in the number and size of boats passing through the St. Marys River necessitated the construction, in 1870, of the Weitzel lock. This lock, completed in 1881 and still in service, is five hundred and fifteen feet long, eighty feet wide in the chamber, and has about fourteen feet of water over the mitre-sills at ordinary low water level.

The increase of lockage facilities did not accommodate the rapid increase in the size and number of vessels necessitated by the constant and great increase of the commerce which passed throug the river, and as a result it became necessary to construct

another lock on the American side. Accordingly what is known as the Poe Lock was built. It has a chamber eight hundred feet long, one hundred feet wide, and a depth of about nineteen feet at ordinary low water.

It was supposed the Poe Lock would accommodate the commerce of Lake Superior for many years. But it, together with the Weitzel lock and the Canadian lock, hereinafter described, has at times proved inadequate for proper despatch of the lake vessels passing the rapids, and it is quite evident that in the near future further lockage facilities must be furnished to meet the demands of commerce.

On the Canadian side of the river a lock nine hundred feet long, sixty feet wide and having about nineteen feet of water on the mitre-sills at ordinary low water, has been constructed. It was completed before the Poe lock. There are several vessels now navigating the lakes which this lock cannot accommodate, their beam being 60 feet or more.

The improvement of the St. Marys River below the locks has been almost continuous, and consists of the clearing of channels, and the construction of the so-called 'Hay Lake Channel.' An available depth of from 17½ to 19 feet, depending on the stage of water, has been obtained. At present the United States Government is engaged in deepening the channels to a depth of 21 feet at low water and in constructing a new channel through the West Neebish, which will furnish an additional passage connecting Hay Lake with Mud Lake. This channel will have a least width of 300 feet and low water depth of 21 feet, or sufficient to accommodate all vessels now navigating the river. These improvements have cost the Government of the United States about fourteen millions of dollars, and the Government of Canada about five millions.

The increase in the size of vessels navigating the lakes, has been rapid. In 1890 lake vessels reached a length of 300 feet, in 1896, 400 feet, in 1902, 500 feet, and 6 vessels 600 feet in length will be put in service during 1906. In 1904 there were only forty boats in the Lake Superior trade with a capacity of 8,000 tons or more, while thirty-two additional vessels will be in commission during 1906, none of which will have a cargo capacity of less than 8,000 tons. The combined cargo capacity of these thirty-two new boats will be about 338,000 tons for a single trip, and they will constitute an addition of about twenty per cent to the carrying capacity of the fleet engaged in the transportation of ore from Lake Superior.

The quantity of freight passing to and from Lake Superior has doubled twice in the past thirteen years, it being 44,270,680 tons in 1905, about four times what it was in 1892. The value of the cargos passing the Sault canals in 1905 was $416,965,484, iron, including ore and manufactured iron, constituting twenty-seven per cent of this value and cereals twenty-eight per cent.

It is estimated that the present lockage system is capable of giving what may be considered reasonably prompt service if not required to pass more than fifty million tons during the season of navigation, but if called upon to pass more than sixty million tons, delays, which are not infrequent now, will become excessive and cause great financial loss. In view of the past growth of this commerce it is extremely hazardous to predict its extent in the future, but a conservative estimate indicates that before another lock can be completed the limit of traffic for prompt service will have been passed. In this connection we would call attention to the fact that the largest classes of boats existing, and now being rapidly built, are already restricted in carrying capacity on account of deficient available depth of water, and are subject to delays because not more than one of them can be passed through the largest lock at one time. In addition to this, many of the largest boats now navigating the lakes are limited to the use of the Poe and the Canadian locks, on account of their size. The rate of increase in traffic and in the size of boats, in the future, judging from the experience of the past and the predictions of those conversant with the subject, will make the present lockage system inadequate before lockage facilities can be increased. The loss, financially, which would result from not furnishing means of passage around the rapids adequate to the demands of commerce, or, in case of accident to any of the existing locks, from delay until repairs could be made, would be incalculable.

The canal leading to the American locks from the upper river is 4,200 feet in length and has an average cross section of about 5,000 square feet. Its width at the narrowest part is only 108 feet, it being crossed at that place by the swing span of the International Bridge. The sides of this canal are frequently lined with vessels awaiting down passage when vessels are leaving the locks to pass into Lake Superior. The manœuvering of boats going in opposite directions in such a narrow passage is very difficult and is accompanied by possibility of accident. The conditions are seriously aggravated by a strong current which occurs in the canal whenever the locks are filled. Plans have been made by the United States Government for enlarging this canal, doubling its width at the narrowest place, and increasing the width at other points. This would relieve the situation at present, but it is quite apparent that provision should be made for further widening, so that when a new lock shall have been constructed, two or more locks may be filled at the same time without creating a violent current. This will necessitate the acquisition of more land on the river side than is now owned by the United States.

The Canadian canal is about 6,000 feet long, from 143 to 156 feet wide, and something over twenty-two feet deep. The Canadian lock above mentioned is at the eastern extremity of this canal. The same general considerations apply to this canal and lock that we have presented in connection with the American canal and locks.

WATER POWER DEVELOPMENTS.

The development of the power of the St. Marys Rapids has been projected and carried on by practically two interests; the Chandler-Dunbar and allied interests, and the Lake Superior Corporation with its subordinate companies, the Lake Superior Power Company and the Michigan-Lake Superior Power Company.

In 1883, Wm. Chandler was granted letters patent for a strip of land about 3,000 feet in length lying along the north side of the St. Marys Falls Canal adjoining the rapids on the American side of the river. In 1887, the Edison Sault Light and Power Company was organized for the purpose of developing water power at this point, and the following year a canal, about 2,200 feet long, was dug through this property, the power developed being used locally, largely for electric lighting. In 1889 a permit was granted the above company by the Government of the United States to extend its tail-race by connecting the lower end of the embankment with Island No. 3, and in 1893 a permit was given for joining Islands No. 3 and 4, which lay in front of the lands owned by the United States, thus providing for a tail-race to enable the company to utilize a somewhat greater head than the fall naturally existing in front of the lands located by Mr. Chandler.

In 1892, a permit was granted by the Secretary of War to the Edison Sault Electric Company, the lessee of the Chandler-Dunbar Company, to build an embankment dam frm the third pier of the International Bridge, extending down stream. The completion of this dam or dyke provided a more commodious head-race and the water power developed has been increased since that time as local needs demanded.

In 1901, this permit was modified to provide for the building of a new power house in front of the lands located by Mr. Chandler, and the construction of a new tail-race outside of Island No. 3, belonging to the United States, on condition that the company should 'abandon the tail-race now used on the inside of Island No. 3, and relinquish to the United States all rights of the Company between said Island and the shore.'

In 1903, this permit was again modified so as to allow the company 'to build farther out into the rapids of St. Marys River,' to remove the power house and a portion of the embankment dam now in use, and to construct a larger power house and longer wall to inclose a forebay and to construct a wider tail-race. Work under this last permit was commenced in the spring of 1905 and is now in progress.

The available head of water on the present works is about 9 feet. The power developed by the turbines is about 750 h.p. The amount of water used in this develop-

ment is about 1,400 cubic feet per second, including leakage. The natural fall in the rapids in front of the shore holdings of the Company was found to be about nine feet, when it was measured in the fall of 1903.

The building, in 1892, of the dyke above mentioned, under permit of that year, obstructed the flow through the rapids under two spans of the International Bridge, shutting off a water area about 1,915 square feet in cross section.

Work is now progressing under the permits granted by the War Department of the United States, and it is expected that a head of about 13 feet will be obtained, furnishing 4,700 mechanical horse-power by the consumption of 4,000 second feet.

The interests constructing these works claim the rights to do so, not only under the permits granted, but, so far as the occupation of the bed of the rapids opposite the Chandler lands is concerned, by virtue of asserted riparian rights appurtenant to the ownership of the adjacent shore. In a litigation now pending, brought by the United States against the Chandler-Dunbar Water Power Company in the Western District of Michigan, the District Court has decided that the ownership of the shore lands carries with it the title to the bed of the river, including Islands Nos. 1 and 2, and from this it follows that the right to erect structures in the river to utilize the waters of the river for power purposes as it flows, past the riparian owners land, exists, subject merely to the restriction that the structures must not, directly or indirectly, injuriously affect navigation.

The Lake Superior Corporation, through its subordinate companies, the Lake Superior Power Company, organized under the laws of the province of Ontario, and the Michigan-Lake Superior Power Company, organized under the laws of the State of Michigan, has constructed canals on both sides of the river, with works for the development of power.

On June 30, 1888, 'The Sault Ste. Marie Water, Gas and Light Company,' was incorporated on the Canadian side under the Revised Statutes of Ontario, Chapter 164. By Act of 1889 the name of the Company was changed to 'The Ontario Water, Light and Power Company,' and it was given power to build dams across the inland channels or rapids of St. Marys River or any branch thereof within the province of Ontario and to construct such other works as might be necessary to supply them with the water needed for their operations, such rights to be exercised only with the consent of the Crown or the individual affected.

After partially completing a water power canal, this company became financially embarrassed and was not able to continue the undertaking.

In 1895, Francis H. Clergue and his associates took over the property of the old company, including franchises for supplying the town with electric lighting, water and street railway privilges. At the same time the name of the company was changed to 'the Lake Superior Power Company,' and in 1896 a portion of St. Marys Island opposite the rapids was granted to the company in exchange for certain lands in the town of Sault Ste. Marie, Ont. The Lake Superior Power Company also acquired other lands in the vicinity north of the Canadian Ship Canal, and at once began the development of water power. 'The Consolidated Lake Superior Company' was formed in 1901 to consolidate and control the interests of this company, the Michigan Lake Superior Power Company, and many others, and in 1904, it was reorganized under the name of 'The Lake Superior Corporation.'

The canal of the Lake Superior Power Company is about 220 feet wide at the water line and 12½ feet deep at the head gates, changing gradually to a prism 86 feet wide and 15½ feet deep at the power house. The present plant is developing about 11,000 h.p. at the turbine shafts. The average amount of water used has been estimated at about 7,000 cubic feet per second, with a maximum of 8,800 cubic feet per second when all wheels are running at full capacity.

In building its works, this company occupied the bed of a small stream, running between the islands on the north side of the river, having a water cross section estimated at 1,603 square feet. This company, with the allied company, the Michigan Lake Superior Power Company, to be described below, has also erected remedial works

on the Canadian side of the river above the 9th and 10th spans of the International Bridge, being the two spans nearest to the Canadian shore, making it possible to nearly stop the flow of water under those spans. The same company has projected a second canal of much larger capacity, work upon which has not been begun.

About 1887, the St. Marys Falls Water Power Company began excavation for a canal through the town of Sault Ste. Marie, Michigan, from a point above the ship canal to connect with the river below the locks. This company failed, and its right of way was purchased by the Michigan Lake Superior Power Company, incorporated under the laws of Michigan, one of the allied companies subsequently forming the Consolidated Lake Superior Company.

The Michigan Lake Superior Power Company has constructed a canal over two miles in length with a cross sectional area of about 4,300 square feet, extending from above the upper end of the St. Marys Falls Ship Canal to a point about a mile below the locks, where it debouches into the lower river.

Pursuant to the provisions of the River and Harbour Act, approved June 13, 1902, the Secretary of War of the United States, under date of December 12, 1902, granted the Michigan Lake Superior Power Company a permit for the diversion of the waters of the St. Marys River through its canal subject to prescribed regulations based upon the maintenance of proper water levels, including the erection of remedial works. The remedial works have been partially constructed, but owing to the fact that they have not been completed, and to the fact that repairs to the company's power house and forebay are needed the full capacity of the canal, 31,200 second-feet, is not used, 8,500 second-feet being the estimated amount actually utilized at present. The remedial works, so far as completed, are those above mentioned partially covering the spans nine and ten of the International Bridge on the Canadian side.

HYDRAULIC CONDITIONS.

The head of the canal at St. Marys Rapids is situated about 14 miles below Point Iroquois, which may be considered the head of St. Marys River. In this 14 miles there is a fall of only about 0·4 foot. As this slope is so slight it is practically constant for all stages of water level, and the mean level of Lake Superior is directly affected by any changes in level that may occur in St. Mary's River above the rapids. The lowest monthly mean level of St. Marys River above the locks within the past 33 years, was in March, 1879, the level being 600·38 feet above mean tide at New York. Since that year it has never been below 601·0 feet during the months of the navigation season, May to November. Since 1893 there has been but one month during the navigation season when the mean level fell below 601·7 feet. Since 1876 the mean level has never been above 603·2 feet.

Previous to the building of the International Bridge in 1887, the channel of St. Marys River at the rapids consisted of the main channel and four small streams running between the islands near the Canadian side. At a water level of 601·7 feet the cross sectional area of these streams previous to obstruction is estimated to have been about 13,452 square feet for the main channel, and 2,064 square feet for the small streams, giving a total area of section of 15,516 square feet. This cross section has been obstructed from time to time by the following works:—

In 1887 the International Bridge was built across the rapids near the head. The piers placed in the rapids cut off an area of section of about 1,133 square feet. During the building of the bridge, and subsequently, fills have been made near the ends of the bridge causing a further obstruction estimated at about 1,139 square feet, including three of the small streams above mentioned and making a total estimated area of section obstructed by the bridge of about 2,272 square feet.

The building, in 1889, of the canal subsequently purchased by the Lake Superior Power Company on the Canadian side, obstructed the fourth of the small streams mentioned above, estimated to have had an area of 1,603 square feet. Subsequently, this company, in connection with the Michigan Lake Superior Power Company, con-

structed remedial works across spans 9 and 10 of the bridge, span 10 being completely closed and span 9 being closed by stoney gates, which may be opened if necessary. The cross sectional area of span 10 so obstructed was about 724 square feet, and of span 9, 1,649 square feet, giving a total cross section of obstruction of 2,373 square feet for remedial works, or 3,976 square feet, if we include the small stream mentioned above.

The dyke built by the Chandler-Dunbar Water Power Company in 1892 closed the area under the first two spans of the bridge with a total water cross section of about 1,915 square feet.

The total area thus obstructed by all works amounts to 8,163 square feet, or more than one-half of the original cross section. The total area of cross section obstructed previous to the construction of the remedial works was 5,790 square feet.

The first effect of these various obstructions was to reduce the discharge of the river, although the flow through the channels not obstructed was somewhat increased. If no diversion were made, the discharge over the rapids being diminished, the mean water level would eventually rise to such a height as to give a discharge through the restricted cross section equal to that which would have taken place through the original cross section at the lower level. The elevation of the water surface would then fluctuate about this new higher mean level much the same as it did before about the lower mean level. The decrease in discharge, due to the obstructions mentioned above other than the remedial works, may be roughly estimated as follows for stage 601·7 feet:—

Flow intercepted by—		
International Bridge piers and fills	7,000	sec. ft.
Chandler-Dunbar Company	7,500	"
Works of Lake Superior Power Company	4,500	"
Total	19,000	"

Since to determine the discharge of the river by observations from the International Bridge, the section upon which most of the observations for discharge have been made, involves estimating the amount of water used by the locks and the several power companies in order to arrive at the total discharge, the results of the discharge measurements are not always accordant. These observations for discharge have not extended over as wide a range of level as could be desired to give a good determination of the rate of change in discharge for change in stage. From a consideration of the published results, however, it appears that previous to the placing of the remedial works at spans 9 and 10 of the bridge, that portion of the discharge of the river passing the rapids alone was 66,500 second feet at elevation 601·7 feet, and 80,400 second feet at elevation 602·7 feet. If these discharges are correct, a rise in the water surface of one foot corresponds to an increase in discharge of 13,900 second feet and the effect of placing obstructions cutting off 19,000 second feet would therefore be to eventually raise the mean lake level approximately 1·4 feet.

Only a portion, perhaps not more than half, of this obstruction, has actually been effective for the reason that it takes place slowly, and that the obstruction has not been complete since the channels have been replaced by the power canals through which the water is allowed to pass.

As the result of observations of discharge made in 1899 and 1902 by the officers of the United States Lake Survey, equations were determined representing the flow in the rapids, first, in spans 3 to 10, inclusive, or previous to the construction of the remedial works above spans 9 and 10 on the Canadian side of the river, and second, in spans 3 to 8, inclusive, or after the remedial works were in place. From these equations it appears that previous to the placing of these remedial works the discharge at 601·7 feet was 66,485 cubic feet per second and that with the remedial works in place the discharge at this stage is 56,880 cubic feet per second, giving a diminished discharge due to the placing of the remedial works of 9,605 cubic feet per second at this stage.

The total flow stopped by the obstructions placed by the various companies may then be summarized as follows for stage 601·7 feet:—

Bridge	7,000 sec. ft.
Chandler-Dunbar Water Power Company	7,500 "
Lake Superior and Michigan Lake Superior Power Company	14,100 "
Total	28,600 "

The present uses of water are estimated to be as follows:—

Government Canals	600 sec. ft.
Chandler-Dunbar Water Power Company	1,400 "
Lake Superior and Michigan Lake Superior Power Company	15,500 "
Total	17,500 "

Previous to the placing of the remedial works of the Lake Superior Power Companies, above spans 9 and 10 of the International Bridge, the discharge of the river at elevation 601·2 was probably about 61,000 second feet. Although the discharge may have fallen below this figure for a few months in years of low water it may be taken as the ordinary low water discharge. Of this amount not less than 4,000 second feet should be reserved for the use of locks and the passage of logs. The Michigan Lake Superior Power Company has a canal designed to take a miximum of 31,200 second feet, the Chandler-Dunbar Water Power Company has works under construction designed to use 4,000 second feet, and contemplates still further development. The Lake Superior Power Company's present works are sufficient to use at least 9,000 second feet, and further development is contemplated, presumably to the extent of using one-half the surplus waters of the river.

It is apparent, therefore, that the actual present use of water for power purposes is nearly equal to the amount of flow obstructed by the works of all the power development companies considered as a unit, and it is clear that the amount of water required for the proposed additions to present power developments is so great as to call for complete control of such extensions by an international commission.

At present the duty of maintaining the water level above the rapids rests upon the Michigan Lake Superior Power Company; the Act of Congress, approved June 13, 1902, authorizing this company to divert water from St. Marys River with the consent of the Secretary of War and the Chief of Engineers, spesifically provides that the level of Lake Superior shall be maintained at the expense, if need be, of the works of this company. With the knowledge that plans for enlarging the works of the power companies were projected, Congress, in the same Act provided for an investigation of the conditions with a view to an agreement looking to international control and regulation. The Commission has used the Rules and Regulations under which the Michigan Lake Superior Power Company was permitted by the Secretary of War of the United States to divert the waters of the St. Marys River, as a basis for the new Rules recommended, adapting them to the wider application now necessary.

RECOMMENDATIONS.

The Commission would respectfully recommend:—

1. That no permits shall be granted for the use of the waters of the St. Marys River, or for the erection of structures in, under or over, or the occupation in any manner of, the said waters until plans have been submitted to the Commission for its investigation and recommendation; and the use of the waters under such permits shall not be allowed except upon compliance with the rules hereinafter recommended.

2. The Commission further recommends that no grants, permits or concessions should be made, which directly or by operation of law may, in any manner, affect the right of the United States or of Canada to control the bed of the St. Marys River, below high water mark, and especially that none should be made which, legally or equitably, may be the means of adding to the expense of acquiring lands or rights for the purpose of making improvements in aid of navigation, or which may give an equitable right to compensation in case of the removal of structures in said river.

3. That steps be taken to increase the lockage facilities at the Sault Ste. Marie without unnecessary delay.

4. That the Governments of the United States and Canada reserve all water necessary for navigation purposes, at present or in the future, and the surplus shall be divided equally between the two countries for power purposes.

5. As the Commission regards the interests of the United States and Canada in the preservation of the lake levels, and in the improvement of the channels and the conservation of the water supply for purposes of navigation, as identical and as incapable of efficient protection without joint and harmonious action on the part of the two Governments, it recommends that the rules hereinafter set forth be adopted, and that a joint commission be created to supervise their enforcement, or that such powers be vested in the existing International Waterways Commission, subject to such restrictions and reservations as may be deemed advisable.

The Commission has adopted unanimously the following resolution:—

Resolved, That this Commission recommends to the Secretary of War of the United States and the Minister of Public Works of Canada, the following Rules to govern the use of water at the Sault Ste. Marie:—

1. No person shall place any structure in, over or under the St. Marys River, nor shall any person place any obstruction in said river, or make any excavation in the bed thereof, or divert water therefrom, until plans for the work shall have been submitted to an international waterways commission, nor until consent shall have been given by the Secretary of War of the United States and the Minster of Public Works of Canada. All work must be done in accordance with plans approved by such Commission and subject to its supervision and inspection; and no water shall be used or diverted until the completed work shall have been approved by the Commission.

2. Persons now using or diverting the waters of St. Marys River for power purposes shall forthwith submit complete plans of all their works existing and proposed, and until such plans have been approved by the Commission, they shall not use or divert the waters of said river in excess of the amount now actually used or diverted by them.

3. Plans for work contemplating the use or diversion of water, must include such remedial and controlling works as may be necessary to maintain levels. Such works must provide for: (1) compensation equal to the amount of water to be used or diverted, (2) complete stoppage of flow through canals and works, (3) passage of the amount of water naturally flowing through the section occupied by the remedial works, (4) passage of logs over the rapids.

4. The level of St. Marys River above the rapids, shall be maintained between the elevations 601·7 and 603·2 feet above mean tide at New York according to the system of levels established by the United States Government in 1903, and defined by a bench mark on the coping of the Weitzel lock at Sault Ste. Marie, Michigan, the elevation of which is 606:069. The approval of plans of works by the Commission and the consent of the Secretary of War and Minister of Public Works to construct works or to use or divert water shall in no way relieve the owners and persons operating such works from the duty of maintaining said level.

5. Nothing herein contained shall be held to affect any existing riparian or other rights, or the existing remedies therefor, or any action at law or in equity now pending. All remedies herein provided shall be cumulative, and shall be without prejudice to any other remedies for failure of persons operating under permits to maintain the

levels for navigation purposes. Nothing herein contained shall be held to affect the exercise of the right of any executive officer of either the United States or Canada, acting under the laws of his respective country, to prevent the placing or to cause the removal of any obstructions in St. Marys River, or to otherwise preserve or restore the navigability of any part thereof.

6. Persons using or diverting the waters of St. Marys River shall operate under the following regulations:—

(*a*) The General Superintendent of the St. Marys Fall Canal, under the orders of the Engineer Officer in charge on the American side, and a resident officer appointed by the Canadian Government on the Canadian side, shall form a Board whose duty it shall be to see that these regulations, and any others that may hereafter be made by proper authority, are duly obeyed. The officers of this Board and their deputies shall have access to all the power works at any time, and all said power works, which term includes canals, escape valves at the power houses, head gates and remedial works, shall be operated in accordance with the orders of said Board, and said Board shall have power to assume entire control of said works, or any of them, whenever it considers such action necessary in the interests of navigation.

(*b*) Should the monthly mean level fall below 601·7 feet for any calendar month, the flow through the power works shall be reduced to such an extent as to restore the monthly mean level to 601·7 feet. Should the monthly mean level remain below 601·7 feet for six consecutive months, all flow through the power works shall be stopped until the monthly mean level shall again be above 601·7 feet. Should the monthly mean level fall below 601·2 feet all flow shall likewise be stopped until the monthly mean level shall again be above 601·2 feet.

(*c*) Should the monthly mean level rise above 603·2 feet the flow through the power canals and remedial works shall be increased to their maximum capacity, and shall so continue until the monthly mean level shall be less than 603·2 feet.

(*d*) Should the power canals, remedial or controllong works be found not to be of the capacity to produce the regulation required, the persons using the water shall alter their works at their own expense as soon as possible, so as to allow more flow, in a manner approved by an international commission.

(*e*) Should currents detrimental to navigation be developed by the operation of any power works, the persons operating such works shall alter them or construct such other works as an international commission may consider necessary to remedy the evil, all in a manner to be approved by said commission.

(*f*) The Board mentioned in regulation (*a*) shall have power to determine whether the conditions mentioned in any of these regulations have arisen to call for the application of said regulations and its determination shall be final; and said Board shall have power to apply to any works such special regulations as they may deem necessary in the interests of navigation.

(*g*) If remedial works be used for the passage of logs or rafts, the gates must be operated at the expense of the persons owning or operating the works whenever needed.

7. Wherever powers of officers are mentioned in these rules, it is understood that the Governments of the United States and Canada reserve the right to vest such powers in, and confer others upon, other officers or the international commission.

8. It is further understood that the Governments of the United States and Canada reserve the right to amend, add to or abolish these rules or any of them by joint action, and that they may vest the power so to do in the international commission.

9. In the event of any person subject to these regulations refusing or neglecting to obey, abide by, or conform to any ruling direction or order of the Commission or of the Board mentioned in Regulation (*a*), such Commission or Board may, through their officers, servants, or agents, at once shut off the supply of water to such person or take such steps to compel compliance with such ruling, direction or order as the Commission or said Board may deem proper.

10. Persons owning or operating power canals or works shall not be entitled to damage or compensation from the Governments of the United States or Canada in any case whatsoever, for any act or acts done by them or either of them, or by their officers or agents at any time, in executing or enforcing these rules, or in exercising the right to control or suspend the flow of water through canals or remedial works or both or in revoking or annulling any permits or grants which may have been or shall hereafter be issued or made to such persons.

11. For the purpose of construing these rules the word 'person' or 'persons' shall be taken as including natural persons, corporations, associations and partnerships whenever they are used, but shall not include the Government of the United States or that of Canada.

GEORGE C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Commissioner.

LOUIS COSTE,
Commissioner.

THOMAS COTE,
Secretary, Canadian Section.

O. H. ERNST,
Colonel, Corps of Engineers, U.S.,
Chairman, American Section.

GEORGE CLINTON,
Commissioner.

GEORGE Y. WISNER,
Commissioner.

L. C. SABIN,
Secretary, American Section.

(19*d*)

SECOND INTERIM REPORT

OF THE CANADIAN SECTION OF THE INTERNATIONAL WATERWAYS COMMISSION.

OTTAWA, ONTARIO, April 25, 1906.

Honourable C. S. HYMAN,
Minister of Public Works,
Ottawa, Ont.

SIR,—The Canadian members of the International Waterways Commission have the honour to submit the following report:—

At the last joint meeting of the International Waterways Commission held in Toronto, on the 6th and 7th of March, 1906, the chairman of the American section presented the following letter:—

DEPARTMENT OF STATE, WASHINGTON, February 13, 1906.

The Honourable the Secretary of War.

SIR,—Several months ago the State Department and the British Ambassador took up the subject of a possible treaty between the United States and Great Britain relating to the use of the waters of the Niagara River and the preservation of the falls.

On November 13, the Ambassador transmitted to the department a report of the Canadian Privy Council, approved November 2, 1905, which stated a report from the Canadian section of the Waterways Commission stated that the Commission was studying the subject and expected to be able to make a joint report to the Government of the United States and to the Government of Canada before long, recommending the adoption of rules and regulations which would prevent in the future the destruction of Niagara Falls by the use of its waters by manufacturers.

In the report of the American section made to the Secretary of War on December 1, 1905, occurs the following statement: 'The Commission have made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls.'

On October 20, 1905, the Comimssion appears to have adopted the following resolution:—

"Resolved, That this Commission recommends to the governments of the United States and Canada that such steps as they may regard as necessary to be taken to prevent any corporate rights or franchises being granted or renewed bf either federal, state or provincial authority for the use of the waters of the Niagara river for power or other purposes until this Commission is able to collect the information necessary to enable it to report fully upon the "conditions and uses" of those waters to the respective governments of the United States and Canada.'

The negotiation relating to a treaty on this subject has been suspended awaiting the further report of the Commission, in accordance with the statements to which I have referred. There are many indications of active public interest in this subject, and a joint resolution having in view the preservation of the Falls, pending in the House of Representatives, has been favourably reported by the Committee on Rivers and Harbours. The indications are that if an agreement can presently be reached

between the two countries as to the action necessary to accomplish the purpose, any legislation to give the agreement effect on the part of the American authorities would receive favourable consideration at the present session of congress and at the present session of the New York legislature.

It seems desirable, therefore, to press forward the negotiations for such an agreement without any avoidable delay. May I ask you to make such a report upon the subject as may furnish a basis upon which the State Department and the Ambassador may take and proceed with the negotiation?

ELIHU ROOT.

The American section then urged that the question of the preservation of Niagara Falls be taken up, before all other subjects as being more immediately pressing.

The Commission spent two days considering the details of a report upon the conditions at Niagara Falls. When the Commission had partly agreed upon the facts, a series of recommendations was suggested by the American section, to the effect that a treaty be concluded between the two countries, wherein it should be agreed to preserve for all time the scenic beauty of Niagara, by pledging each country to cancel all charters, other than those under which works had been actually constructed and by agreeing to prohibit all other diversion of water which is naturally tributary to Niagara Falls, except such as may be required for domestic use and for the service of locks in navigation canals.

The Canadian section opposed any hasty action, and an adjournment was made until the 26th of April at Washington.

Intimation was given at the meeting that unless the Joint Commission was prepared to report promptly, the American section might be called upon to give an independent report, in compliance with the following resolution which had been submitted to Congress:—

'Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the members representing the United States upon the International Commission created by section four of the River and Harbour Act of June thirteenth, nineteen hundred and two, be requested to report to Congress at an early date what action is in their judgment necessary and desirable to prevent the further depletion of water flowing over Niagara Falls; and the said members are also requested and directed to exert, in conjunction with the members of the said Commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of the said Niagara Falls in their natural condition,' and that in that case, it was likely that action would be taken looking to the negotiation of a treaty without further reference to our Joint Commission, and on the 19th of March, the American section made a report to the Secretary of War, which has been transmitted to Congress by the President of the United States, by Message dated March 27 (copy of which is hereby appended marked 'A').

In order that you may understand the situation, we desire to give you a short summary of the facts and conditions, as they now present themselves to us:—

The volume of water discharged at Niagara Falls varies from 180,000 cubic feet per second at low stage of Lake Erie, to 280,000 cubic feet per second at high stage of the lake, the mean discharge being 222,400 cubic feet per second at mean level of Lake Erie (elevation 572·86).

There are now five companies engaged in furnishing or preparing to furnish, electricity, two located on the American side and three on the Canadian side of the river, above the falls.

The American companies, when in full operation, will develop about 340,000 h.p. and use about 26,400 cubic feet of water per second, while the companies on the Canadian side, will have a capacity in all, of about 415,000 h.p. and use about 32,100 cubic feet of water per second; the result being that from 27 to 33 per cent of the total

volume of water which would otherwise go over the falls will be used for power purposes.

It is conceded by the American section that as the diversions of water on the Canadian side, are made at or below the crest of the rapids, they do not affect in any degree the flow over the American fall.

The opinion of experts is that when these works are in full operation, while there will be a noticeable diminution of the water flowing over the falls, it will not have the effect of destroying or seriously impairing the scenic beauty of the falls; indeed, our own engineer is of the opinion that while the limit of development has been reached, even exceeded on the American side, a considerably larger use could be made for power development on the Canadian side, without injury to the falls. With this latter contention, the American engineer does not now agree. Both, however, are of the opinion that this question can be much more definitely and properly settled when the consequence of the present developments has become apparent.

Both the companies whose works are on the American side of the river, viz.: the Niagara Falls Hydraulic Power and Manufacturing Company, and the Niagara Falls Power Company, will distribute all their power in the United States. Two of the companies on the Canadian side, viz.: the Canadian Niagara Power Company, and the Ontario Power Company, intend using a large part of their power on the American side. In fact, the former has laid a wire on the traffic bridge, immediately below the falls, and intends laying wires across the river between Fort Erie and the city of Buffalo. The latter company has laid wires across the river at a point above Lewiston known as the Devil's hole. Neither of these two companies has made any serious effort to distribute its power in Canada. The third company, the Electrical Development Company, are erecting transmission lines as far as Toronto, and intimate their intention to build other lines to supply the western section of the province as far as London.

The Cataract Power Company, who take their water from the Welland canal, and use the escapement at DeCew's Falls, is the only other company operating in the same section; they are at present developing about 14,000 h.p. and use 600 cubic feet per second. This company, together with the Electrical Development Company, can supply all the immediate Canadian demand.

The only condition in the agreement between the Park Commissioners and the three companies operating on the Canadian side at the falls, relating to exportation of power, is as follows:—

'(11) The company whenever required shall from the electricity or pneumatic power generated under this agreement supply the same in Canada (to the extent of any quantity not less than one-half the quantity generated) at prices not to exceed the prices charged to cities, towns and consumers in the United States at similar distances from the Falls of Niagara for equal amounts of power and for similar uses and shall whenever required by the Lieut.-Governor in Council make a return of prices charged for such electricity or power, verified under oath by any chief officer of the company, and if any question or dispute arises involving the non-supply or prices of electricity or power for consumption in Canada, the High Court of Justice of Ontario shall have jurisdiction to hear and determine the same and enforce the facilities to be given or the prices to be charged.'

It will be seen that this provision, possibly, does not afford much protection; the companies themselves will not be inclined to build transmission lines in Canada while they have a much better market across the river, and no one on this side is at present in a position to demand power. The provision, in our opinion, creates, however, a moral obligation which your government should put itself in a position to enforce. At present, necessarily, if these companies are to be made to pay dividends they must sell their power where there is a market for it; so that to entirely refuse to allow them to export would be ruinous to them and not justified by the existing conditions. The Park Commission will receive a revenue of about $250,000 a year from the three com-

panies operating under agreements with them. This sum represents a very small proportion indeed of the yearly value of their franchises. It is estimated that the saving in cost of power at the point of production in favour of falling water over any other method is at least $25 per h.p. This benefit should be apportioned in a reasonable degree between the producing companies and the general public. It will be a misfortune if the companies holding Canadian charters are not restricted in their exportation by regulations distinctly understood and accepted which will compel them to carry out the spirit of their agreements by distributing power in Canada as demand is created, at reasonable prices. In the opinion of this Commission adequate returns for their investment can thus be secured to the companies, while at the same time the Canadian public will obtain great advantage from the use of this their natural advantage.

If there was a market in our country for one-half the power that could be generated at Niagara, its value put into millions per annum would be sterling, but there is no such immediate demand, and it seems to your Commission that the present purpose of all concerned will be best served by preserving Niagara Falls and at the same time making such provisions as are necessary to insure to our people the benefit of all the cheap power required. If we keep ourselves in a position to control the distribution of the power generated on the Canadian side of the river, it will enable us to supply the requirements of our people for years to come without any future development.

The Dominion Parliament has granted charters to three corporations which are still in force, viz.: the Niagara-Welland Power Company and the Jordan Light, Heat and Power Company, organized for the purpose of diverting water from the Welland river, which water would be taken from the Niagara river by back flow, and the Erie and Ontario Power Company, which would take its water from the Grand river and Lake Erie. These companies seem to be unlimited as regards the quantity of water that they may use or the power they may generate.

Quite irrespective of the question of injury to Niagara Falls, the charter granted to the Erie and Ontario Power Company is subject to the further serious objection that its operation would have the effect of lowering the level of the water in Lake Erie.

As we already have at Niagara and Decew's Falls a development three times the Canadian demand, it would seem to be the sheerest folly to increase the development until our own market requires it. It is very little advantage indeed to this country to develop power which is to be transmitted to the United States. We are therefore of opinion that it would be wise to enter into an arrangement with the United States limiting the amount of water to be used on the Canadian side at Niagara river and elsewhere on the Niagara peninsula to 36,000 cubic feet per second. This will permit of the completion of the works now in operation on the Niagara river to their fullest capacity. It will also permit the Cataract Power Company to continue its operations and will give us a few thousand cubic feet per second for additional developments.

At Chicago, the Americans have built a drainage canal, which when in full operation will use about 10,000 cubic feet of water per second.

The quantity of water required for the purposes of a ship canal is comparatively small, but the character of this drainage canal at Chicago is such as to involve a continuous flow of water which will have the effect of lowering Lake Michigan by over six inches, and Lake Erie by four and one-half inches. The nature of this work may be judged when we state that the expenditure will be some forty millions of dollars, and that power works are in course of construction on the caanl which will generate some 30,000 h.p.

As the diversion from Lake Michigan to the Mississippi river is of a much more serious character than the temporary diversions from the Niagara river, it is felt that the amount of water to be taken on the American side of the Niagara river should be limited to 18,500 cubic feet per second.

But, in the opinion of your Commission, the preservation of Niagara Falls is a minor matter as compared with the preservation of the interests of navigation on the Great Lakes.

Lake Erie, as you know, is a shallow lake, and the navigation interests already represented by capital investments of one thousand millions of dollars are very much alarmed and are very insistent that the interests of navigation should be paramount and that there should be no further diversion whatever for power purposes which will interfere in any way with the mean level of the lakes. On the other hand, the demand for the use of power is growing every day and the time has come when it is absolutely essential that some dominant hand should intervene as between these conflicting interests and settle how and when, if at all, diversion is to be allowed of these boundary waters for power purposes.

It is exceedingly important in the interests of navigation, both to ourselves and the people of the United States, that the diversion by way of the Chicago drainage canal should be limited. It is equally essential in the interests of both countries that no diversion or interference should be allowed in streams crossing the boundary which would interfere with the interests of navigation in either country. It is all important that while we are settling the policy as to Niagara Falls we should at the same time establish certain principles which shall be applied in settlement of all classes of dispute which can arise between the two countries with regard to the use of boundary waters or of streams which cross the boundary from one country to the other.

If our proposal is carried out the diversion will be about as follows:—

DIVERSIONS ON THE AMERICAN SIDE.

	Cubic feet per second.
Niagara Falls	18,500
Chicago Drainage Canal	10,000
Total	28,500

DIVERSIONS ON THE CANADIAN SIDE.

	Cubic feet per second.
Niagara Falls and on the Niagara Peninsula	36,000

It is quite apparent that no further diversions can be made on the Niagara river without injury to the scenic effect of the falls as a whole, and there should be no further diversion from Lake Erie or any other of the waters of the Great Lakes system which will be injurious to navigation. Your Commission is therefore of opinion that the time has come when it is desirable to make a treaty limiting these diversions, and we have prepared a series of resolutions which we intend to submit at the next meeting of the Joint Commission, as follows:—

Whereas, in the opinion of this Commission it is desirable that the whole question of the uses and diversions of the waters adjacent to the boundary line between the United States and Canada, and the uses and diversions of all streams which cross the international boundary between the said countries should be settled by treaty;

Therefore, this Commission recommend that a treaty be had between the United States and Great Britain, in framing which it should be recognized that—

1. In all navigable waters the use for navigation purposes is of primary and paramount right, and therefore diversions should not be permitted which interfere with such use.

2. The Great Lakes system, on the boundary between the United States and Canada, and finding its outlet by the St. Lawrence to the sea, should be maintained in its integrity, and no diversions of water tributary to such streams should be permitted by either country.

3. Permanent or complete diversions of such waters are wrong in principle and should hereafter be absolutely prohibited. The diversions by the Chicago drainage canal, which is of this character, should be limited to the use of not more than 10,000 cubic feet per second.

4. Diversions which will not interfere with navigation (elsewhere than at Niagara river or the Niagara peninsula), should only be permitted,

(*a*) For 'innocent' uses, viz.: for domestic purposes and for the service of locks in navigation canals.

(*b*) Temporary diversions, where the water taken is returned again, only on the recommendation of a joint commission; such diversions not to interfere in any way with the interests of navigation and to be allotted in equal proportions to each country and so that each may have a like benefit.

5. It should be declared to be a principle with relation to the use of all navigable rivers and streams crossing the international boundary that no obstruction or diversion should be permitted, either on such rivers or their tributary streams, which will interefere with the interests of navigation in either country.

6. As to the diversions from Niagara river and on the Niagara peninsula:—

(*a*) In the opinion of this Commission it would be a sacrilege to destroy the scenic effect of Niagara Falls unless and until the public needs are so imperative as to compel and justify the sacrifice.

(*b*) It is possible to preserve its beauty and yet permit the development on the Canadian side at the Niagara river itself and elsewhere by diversions on the Niagara peninsula to Lake Ontario of water for power purposes to the extent of not more than 36,000 cubic feet per second, exclusive of water required for domestic uses, and for the service of locks in navigation canals.

(*c*) It is likewise possible to allow the diversion of waters for power purposes on the American side to the extent of 18,500 cubic feet per second, exclusive of the amount required for domestic uses, and for locks in navigation canals, without serious injury to the scenic aspect of the falls.

(*d*) Your Commission are of the opinion, therefore, that for the present the diversions should be limited to the quantities mentioned in subsections *b* and *c*.

(*e*) This would give an apparent advantage to Canadian interests, but, as the diversion is not of serious injury to the falls, and does not materially affect the interests of navigation, it is more than counter-balanced by the complete diversion of 10,000 cubic feet by way of the Chicago drainage canal to the Mississippi river.

7. Magnificent as are the scenic effects of the Falls of Niagara, the commercial value of the power which its waters can produce is so very great, and the future need may be so pressing, that, in the opinion of your Commission, it will be sufficient that a treaty with regard to the diversions there should be limited to the period of twenty-five or thirty years.

8. As to non-navigable streams flowing in either direction across the international boundary line, diversions for irrigation or other than 'innocent' uses, be allowed, so that each country shall have an equal benefit from such diversions and that a joint commission shall have power to deal with and regulate such uses.

Suggestions have been made that the mean level of Lake Erie can be raised by the erection of a dam at the mouth of the Niagara river, but to this course strong objection is made by the parties in interest at Montreal and elsewhere who apprehend that the result would be to lower the level of Lake Ontario and the St. Lawrence river. It is admitted on all sides that if such will be the effect the work cannot go on. Your Commission in due course will be able to report upon this important question.

GEORGE C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
LOUIS COSTE,
Members, Canadian Section.

THOMAS COTE,
Secretary, Canadian Section.

DOMINION OF CANADA

ANNUAL REPORT

OF THE

DEPARTMENT OF RAILWAYS AND CANALS

FOR THE FISCAL YEAR

FROM JULY 1, 1904, TO JUNE 30, 1905

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE REVISED STATUTES OF CANADA, CHAPTER 37, SECTION 28

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

[No. 20—1906]

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet; Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

MAY IT PLEASE YOUR EXCELLENCY,—

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Railways and Canals, of the Dominion of Canada, for the past fiscal year from July 1, 1904, to June 30, 1905.

All of which is respectfully submitted.

H. R. EMMERSON,
Minister of Railways and Canals.

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REPORT OF THE DEPUTY MINISTER.

To the Honourable H. R. Emmerson,
Minister of Railways and Canals.

Sir,—I have the honour to submit the annual report of the Department of Railways and Canals for the fiscal year ended June 30, 1905.

I assumed the duties of Deputy Minister and Chief Engineer of the department on July 1, 1905, having been appointed to that office on the transfer of Mr. Collingwood Schreiber, C.M.G., who had previously filled it, to a position as consulting engineer to the government.

The annual reports of the engineers, together with general and special reports from superintendents, both of railways and canals, and from other officers in the department, are given in appendices.

In Part I. will be found statements showing the amounts expended during the past fiscal year in construction, repair and maintenance of the several works under the department; also statements showing total expenditure on each canal since its construction, and on each of the government railways; also a statement showing the payments made, year by year, to subsidized railways, with the aggregates of such payments.

GENERAL SUMMARY.

The expenditures of the department for the fiscal year 1904-5 on its works of construction, operation and maintenance, both railway and canal, and in furtherance, by subsidy under authority of parliament, of outside railway enterprises, are as follows:—

The total railway expenditure for the year amounts to $16,404,772.67; of which $6,125,481.79 was charged to capital, $8,906,154.35 to revenue, and $1,373,136.53 to income.

The expenditure on capital included $778,491.28 for the Transcontinental Railway.

The expenditure on income included the sum of $1,275,629.33 paid as subsidies to railways other than the government roads, also $77,557.95 for the Board of Railway Commissioners for Canada.

The expenditure on the Intercolonial Railway was $13,246,448.68, namely, on capital account $3,937,621.93, to which is to be added for the purchase of the Canada Eastern Railway, now embraced in this system, $800,000, making a total of $4,737,621.93, and on revenue account $8,508,826.75; this includes the Windsor branch.

The expenditure on the Prince Edward Island Railway was $961,877.09, of which $591,412.65 was on capital and $370,464.44 on revenue account.

The expenditure on canals aggregates $3,323,704.75, of which $2,071,593.72 was chargeable to capital, $354,353.57 to revenue, $483,824.37 for staff, and $413,933.09 for repairs.

Adding to the above the further sum of $38,660.52 for miscellaneous expenditures common to both branches, the total departmental expenditure for railways and canals for the past fiscal year amounted to $19,767,137.94.

The total revenue derived from the government works for the past fiscal year was $7,128,901.32, namely, from railways, $7,050,892.11, and from canals, $78,009.21, of which the sum of $76,546.46 was derived from hydraulic rents.

By Orders in Council of April 27 and May 19, 1903, tolls for passage through any of the government canals were abolished; the exemption, which was by way of experiment, to continue in force for the two seasons of navigation of 1903 and 1904, only. A further Order of February 25, 1905, continued the exemption for the season of 1905, and on June 22, 1905, the system of toll collection was definitely abandoned, in respect of any and all the canals of the Dominion.

A sufficient staff has, however, been retained to carry on the essential work of recording the traffic through the canals—information which is requisite for the proper knowledge and appreciation of the commercial progress of the country—and for the collection of such other revenues as are derivable from the leasing of canal lands and water-powers, &c.

The total expenditure on government railways prior to and since Confederation (July 1, 1867), up to July 1, 1905, amounts, on capital account, to $148,773,520.88, which includes the sum of $25,000,000 granted (from capital) to the Canadian Pacific Railway Company for its main line. In addition, there has been expended from the consolidated fund a total of $149,836,015.03, including $32,617,560.69, paid as subsidies to railways other than the Canadian Pacific Railway, and $115,971,870.31 for working expenses of the government railways, making a total expenditure of $298,609,535.91. Of this amount the sum of $13,881,406.65 was expended on construction works prior to Confederation, on portions of what is now the Intercolonial Railway system.

The total revenue received from the government railways from July 1, 1867, to July 1, 1905, amounts to $104,620,500.22.

The government expenditure on canals from July 1, 1867, to July 1, 1905, amounts, on capital account, to $89,294,758.39, and from the consolidated fund to $22,342,500.96, making a total of $111,637,259.35.

The total revenue derived from canals during the same period is $13,405,515.56.

The total expenditure on railways and canals up to July 1, 1905, is as above, $410,246,795.26, to which must be added for miscellaneous expenditures, embracing both, $667,955.11; making a grand total of $410,914,750.37.

The total revenue derived from railways and canals from July 1, 1867, to July 1, 1905, is $118,026,015.78.

Details of the above will be found in the statements of the accountant of the department, Part I., pages 3 to 49, inclusive.

RAILWAYS.

The present report deals with those railways of the Dominion directly controlled by the federal government, and others towards the construction of which subsidies have been granted or authorized.

Separately printed, will be found a special statistical report, embodying returns for the fiscal year ended June 30, 1905, made by Canadian railway companies, as required by statute. This gives detailed information as to railway operations in Canada, including the government roads, of which the following is a summary:—

I have to draw attention to the fact that notwithstanding repeated remonstrance against delay and neglect, there has been again, this year, default on the part of certain companies to fulfil their statutory obligations in this regard. Under these circumstances, it has been found necessary, as approximating to the present position, to utilize the statements furnished in previous years. The following are the names of the companies in default:—

STEAM.

Bruce Mines & Algoma Railway Company.—Statements used, those of the year 1904.

Lotbiniere & Megantic Railway Company.—Statements used, those of the year 1904.

New Brunswick Coal & Railway Company.—Statements used, those of the year 1903.

Quebec Southern Railway Company.—Statements used, those of the year 1903.

ELECTRIC.

The St. Thomas Electric Railway.—No returns have been furnished.

STEAM RAILWAYS.

The number of steam railways in actual operation, including the two government roads, the Intercolonial and the Prince Edward Island Railways, at the close of the fiscal year, June 30, 1905, was 194; some of these, however, are amalgamated or leased, making the total number of controlling companies 91, not including the government railways. The number of companies absorbed by amalgamation was 56, and the number of leased lines was 39.

On June 30, 1905, the number of miles of completed railway was 20,601, an increase of 990 miles, besides 3,632 miles of sidings. The number of miles laid with steel rails was 20,533, of which 838 miles was double track. The number of miles in operation was 20,487.*

The paid-up capital amounted to $1,248,666,414, an increase of $62,119,496.** The gross earnings of the year amounted to $106,467,199, an increase of $6,247,763, and the working expenses aggregated $79,977,574, an increase of $5,414,412, compared with those of the previous year; leaving the net earnings $26,489,625, an increase of $833,351. The number of passengers carried was 25,288,723, an increase of 1,647,958, and the freight traffic amounted to 50,893,957 tons, an increase of 2,796,438 tons. The total number of miles run by trains was 65,934,114, an increase of 4,622,112.

The rolling stock comprised: For passenger service 2,338 cars; for freight service 86,992, including 57,229 box and cattle cars; and for operation and maintenance service 4,831, making a total of 94,161 cars. Of these, 78,178 were equipped with air-brakes, and 85,381 were fitted with automatic couplers, an increase of 4,796 over the previous year. The locomotives numbered 2,906.

The accident returns show a total of 468 persons killed, 35 being passengers, 206 employees and 227 others, and, in addition, 1,357 injured, of whom 244 were passengers, 919 employees and 194 others. By train collisions and derailments 16 passengers, 31 employees and 2 others were killed, and 143 passengers, 121 employees and 9 others were injured. Through jumping on or off trains or engines in motion, 7 passengers, 10 employees, and 12 others were killed, and 52 passengers, 95 employees, and 27 others were injured. Through walking, lying or being on the track, 1 passenger, 43 employees and 135 others were killed, and 1 passenger, 52 employees, and 55 others were injured. Through falling from cars or engines, 8 passengers, 45 employees, and 13 others were killed, and 15 passengers, 138 employees, and 13 others were injured. Through being struck by engines or cars at highway crossings, 2 employees and 57 others were killed, and 3 employees and 64 others were injured. In the work of coupling cars, 27 employees were killed, and 102 employees and 1 other were injured, a total of 130, as against 178, 211, 241, 290 and 363 in the five preceding years, re-

* Of this mileage, the Canadian Pacific Railway comprised 8,298 miles, (5,095.50 owned and 3,202.50 leased), the Grand Trunk Railway 3,111.13 miles; the Intercolonial 1,448.96 miles, including the Windsor Branch; the Canada Atlantic 458.60 miles (400.30 miles owned, and 58.30 leased) and the Canadian Northern 1,880.57 miles (1,525.92 owned, and 354.65 leased).

** The main items of this increase are the following: Canadian Northern, $13,027,244; Canadian Pacific, $28,186,084; Grand Trunk, $1,466,083; Intercolonial $4,737,621.93.

spectively; a very satisfactory testimony to the efficiency and value of the automatic car coupler, now, happily, growing in general use.

By the Railway Act, 1903, section 211 (c), railway companies are required to provide and use in their engines and cars 'couplers which couple automatically by impact, and which can be uncoupled without the necessity of men going in between the ends of the cars.' They are allowed, however, until January 1, 1906, for fitting with such couplers cars built prior to the passage of the Act.

ELECTRIC RAILWAYS (INCLUDING STREET RAILWAYS AND TRAMWAYS).

At the close of the fiscal year ended June 30, 1905, there were 793 miles completed, of which 768 miles were laid with steel rails, 186 miles being double-tracked. The paid-up capital amounted to $61,033,321, of which the municipal aid amounted to $173,000 (including $100,000 subscription to shares, and $40,000 loan). The number of miles in operation was 793, the actual increase being 26 miles. The gross earnings aggregated $9,357,125, an increase of $903,516, and the working expenses $5,918,194, an increase of $591,677, leaving the net earnings $3,438,931, an increase of $311,839. The number of passengers carried was 203,467,317,* an increase of 22,777,319, and the freight carried amounted to 510,350 tons, an increase of 110,189 tons. The car mileage was 45,959,101, an increase of 3,892,977 miles. The accident returns show a total of 56 persons killed during the year, 30 being passengers, 3 employees and 23 others. In addition, 1,269 persons were injured. Of these, 884 were passengers, 65 employees and 347 others; 1 passenger was killed, and 103 passengers, 4 employees and 1 other were injured in collisions and derailments; 2 passengers were killed, and 362 passengers, 2 employees and 5 others injured, through jumping on or off cars in motion; 1 passenger and 19 others were killed, and 2 passengers, 2 employees and 110 others injured through walking or being on the track; 22 passengers and 2 employees were killed, and 338 passengers, 15 employees, and 140 others injured through falling from cars; 4 passengers, 1 employee and 4 others were killed, and 37 passengers, 3 employees, and 78 others injured by being struck by cars at highway crossings; 3 employees were injured by coupling cars.

ALL RAILWAYS, STEAM AND ELECTRIC.

At the close of the fiscal year ended June 30, 1905, the conjoined statistics of steam and electric roads (including street railways) show the following results: There were 21,394 miles of railway completed, 21,280 miles being in operation. The paid-up capital amounted to $1,309,699,735. The gross earnings were $115,824,325, and the total working expenses $85,895,769, making the net earnings $29,928,556.

* The city street railways and their extensions carried passengers as follows: Montreal (3 companies), 67,297,268; Toronto (3 companies), 65,792,792; Ottawa, 9,328,690; Quebec, 5,558,101; Hamilton (4 companies), 6,396,419; Winnipeg, 11,255,967; London, 4,812,530; Halifax, 3,540,310; St. John, 2,608,601; and Vancouver, Victoria, and New Westminster (operated, and returns made by one company), 10,352,451.

228,756,040 passengers, and 51,404,307 tons of freight were carried; 65 passengers were killed.*

GOVERNMENT RAILWAYS IN OPERATION.

The government railways are: the Intercolonial, the Windsor Branch (maintained only), and the Prince Edward Island Railway.

Details respecting these railways and their operations will be found in the appendices, Part I., containing reports from the chief engineer of the department, the general manager of government railways, and the officials of these roads.

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* The following table shows the progressive development of railway construction in Canada.

Year.	Miles in Operation.	Year.	Miles in Operation.
1835	0	1871	2,695
1836	16	1872	2,899
1837	16	1873	3,832
1838	16	1874	4,331
1839	16	1875	4,804
1840	16	1876	5,218
1841	16	1877	5,782
1842	16	1878	6,226
1843	16	1879	6,858
1844	16	1880	7,194
1845	16	1881	7,331
1846	16	1882	8,697
1847	54	1883	9,577
1848	54	1884	10,273
1849	54	1885	10,773
1850	66	1886	11,793
1851	159	1887	12,184
1852	205	1888	12,585
1853	506	1889	12,585
1854	764	1890	13,151
1855	877	1891	13,838
1856	1,414	1892	14,564
1857	1,444	1893	15,005
1858	1,863	1894	15,627
1859	1,994	1895	15,977
1860	2,065	1896	16,270
1861	2,146	1897	16,550
1862	2,189	1898	16,870
1863	2,189	1899	17,250
1864	2,189	1900	17,657
1865	2,240	1901	18,140
1866	2,278	1902	18,714
1867	2,278	1903	18,988
1868	2,270	1904	19,431
1869	2,524	1905	20,487
1870	2,617		

To the above is to be added the following, in respect of electric railways from the year 1901, the first year of publication of returns :—

Year.	Miles in Operation.
1901	553
1902	558
1903	759
1904	767
1905	793

The gross earnings of all the government roads for the past fiscal year, 1904-05, amounted to $7,050,892.11, and compared with those of the preceding year, show an increase of $423,636.60. The gross working expenses amounted to $8,906,154.35, an increase of $1,306,195.78.

The net loss on the operations of the year was $1,855,262.24.

The Intercolonial produced a loss of $1,725,303.92, the Windsor Branch (one-third of total earnings), a profit of $23,175.51, and the Prince Edward Island a loss of $153,133.83.

The above figures include rental, $140,000, paid for the extension of the Intercolonial into Montreal.

It is proper here to observe that the upward tendency of wages of the wage-earning classes that, for various reasons, characterizes the present day, has been markedly felt on the government railways, and a very considerable portion of their expenditure is due to the increase in wages it has been found necessary to pay to their employees.

INTERCOLONIAL RAILWAY.

On March 1, 1898, the operations of the Intercolonial were extended to Montreal by means of leases obtained from the Grand Trunk and Drummond County Railway companies, making an addition of 169·81 miles to the operation of the government line.

The leasing agreement with the Grand Trunk Railway Company, dated February 1, 1898, was confirmed by the Act 62-63 Vic., Chap. 5 (1899). Its term extends for a period of ninety-nine years from March 1, 1898; the annual rental being fixed at $140,000.

Under authority of the Act 62-63 Vic., Chap. 6 (1899), the Drummond County Railway from Chaudière to Ste. Rosalie, together with the branch from St. Léonard to Nicolet was acquired by the Dominion; conveyance being made by a deed dated November 7, 1899.

On June 30, 1904, the total mileage of the railway and its branches was 1,320·92 miles, the addition being due to the completion of the Rivière Ouelle branch.

During the past fiscal year, this length has been increased by the purchase, on October 1, 1904, of the Canada Eastern Railway from Gibson to Loggieville, 123·67 miles, and by the surrender, on April 19, 1905, of the Fredericton and St. Mary's bridge, and connected property, 1·33 mile. The total mileage of the Intercolonial Railway system in operation on June 30, 1905, was 1,445·92 miles.

The accountant of the railway has dealt with the rental paid under the Grand Trunk Railway lease (the only one now remaining), as an addition to the ordinary working expenses, and, in his comparative statement of averages for each year, both

with the rental included, and also with the rental omitted. The statements of the general manager, however, are based on figures from which the rental is omitted. This explanation will cover any seeming discrepancy of statement in the matter. The accountant of the department, in his statements (Part I.), includes the rental, and it is also included in my present report.

CAPITAL ACCOUNT.

During the fiscal year there was an addition of $4,737,621.93 to the capital expenditure, making the total expenditure chargeable to capital on the whole road as amalgamated under the Acts 54-55 Vic., Chap. 50 (1891) and 62-63 Vic., Chaps. 5 and 6 (1899), together with the acquired Canada Eastern Railway up to July 1, 1905, $77,473,557.73.

The additions made during the past fiscal year included (omitting cents) the following more important items: For rolling stock, $1,377,078; for steel rails and fastenings, $495,009; for the purchase of the Canada Eastern Railway, $800,000; for strengthening bridges, $246,242; for air brakes to freight cars, $24,991; for changing link and pin draw-bars of freight cars to M.C.B. couplers, $45,060; for new machinery for locomotive and car shops, $40,308; for additional sidings along the line, $139,165; for increased accommodation and facilities along the line, $132,717; for engine-house, machine-shop, &c., at Rivière du Loup, $66,986; for engine-house &c., at Chaudière Junction, $34,623; for improving the ferry service at the Strait of Canso, $45,928; for protection to the bridge at Grand Narrows, C.B., $35,801; for extension to Sydney Mines, $24,044; for reduction of curve at Birch Cove, $42,447; for double-tracking parts of the line, $151,147; for spur lines and sidings, $23,700; for new superstructure of the Restigouche bridge, $43,363; for increased accommodation at various points, as follows, amongst others: Sydney, $59,288; Stellarton; $26,728; St. John, $46,396; Halifax, $372,791; Pictou, $68,125; Moncton, $85,105; Ste. Flavie, $60,759; Truro, $56,468. Details of these and other items will be found in the reports of the general manager and other officials of the railway in Part I. of the appendices.

REVENUE ACCOUNT.

The gross earnings of the year amounted to $6,783,522.83, an increase, compared with the previous year, of $444,291.40, and the working expenses to $8,508,826.75, an increase of $1,268,844.71. The expenditure was in excess of the earnings to the extent of $1,725,303.92. The several classes of expenditure were as follows (omitting cents): For locomotive power, including salaries, wages, fuel, repairs, &c., $3,116,653, an increase of $499,731; for car expenses, including wages, repairs, &c., $2,040,133, an increase of $332,205; for maintenance of way and works, $1,722,616, an increase of $230,943; for station expenses, $937,816, an increase of $59,743, and for 'general charges,' which include staff salaries, damages paid, ferry service, printing, advertising and agency expenses, $535,541, an increase of $17,605.

Comparing the earnings with those of the previous year, the passenger traffic produced 31·03 per cent of the gross earnings, and amounted to $2,021,568.04, an in-

crease of $83,498.76; the freight traffic, 64·47 per cent, amounting to $4,373,178.55, an increase of $332,056.07 (against a decrease in the previous year of $87,132.52) and the carriage of mail and express matter produced 4·50 per cent, amounting to $305,277.53, an increase of $28,736.98. The earnings per mile of railway (based on a mileage of 1,414·67 miles, as against 1,320·92 the previous year) amounted to $4,795.13, a decrease of $3.97 per mile. The receipts per engine mile amounted to 72.08 cents, against 77·07 cents the previous year.

The working expenses per mile of railway were $6,014.70, an increase of $533.68. The cost per train mile was 116·61 cents, an increase of 5·29 cents, and per engine mile 90·42 cents, an increase of 2·40 cents. These figures include the rental of the leased extension into Montreal.

The engine mileage was 9,410,293 miles, an increase of 1,185,435 miles; the train mileage was 7,296,745 miles, an increase of 793,166; and the car mileage 88,255,-277 miles, an increase of 7,224,518 compared with the previous year.

GENERAL OBSERVATIONS.

The traffic of the road during the past year compared with that of the previous year is indicated by the following details covering the principal items comprising it.

The number of passengers carried was 2,810,960, an increase of 147,804, of whom 142,085 were local, and 5,719 through passengers. Of freight 2,782,257 tons were carried, an increase of 811,108 tons. The quantity of local freight decreased to the extent of 3,733 tons, and the through freight increased by 121,841 tons.

Of flour and meal 1,769,480 barrels were carried, an increase of 162,430, and of grain 3,317,910 bushels, an increase of 529,138. The quantity of lumber moved was 518,434,310 superficial feet, an increase of 53,054,507 feet. There was again a decrease in the number of live stock carried, namely, 110,670 head, the decrease being 2,336. Coal showed a decrease of 92,384 tons, the quantity being 602,377 tons. 79,513 cords of firewood were carried, an increase of 25,907 cords. Of manufactured goods 632,023 tons were carried, being an increase of 109,613 tons. Of goods other than the above there was a decrease of 689,172 tons, the quantity carried being 504,991 tons. This included 15,684 tons of raw sugar, an increase of 6,954 tons, and 31,764 tons of refined sugar, a decrease of 13,156 tons; also fresh fish, 11,871 tons of which were carried, an increase of 803 tons, and 10,137 tons of salt fish, an increase of 1,141 tons.

Of ocean borne goods to and from Europe via Halifax, 105,149 tons were carried, a decrease of 69,381 tons; of this quantity, 15,325 tons were moved via Montreal to and from the west, being a decrease of 6,052 tons.

The unprecedented severity of the winter entailed heavy direct expense in the removal of snow and ice, besides, as is pointed out by the general manager, largely increasing the operating expenses otherwise, and, at the same time, causing a loss of revenue from traffic. The cost is set down by the railway officials as $264,716.14, which would be an increase of over $134,000, compared with the preceding years. This, however, but faintly represents even the direct cost entailed by the winter storms, covering, as it does, merely the actual work of removal of the material. To

this has to be added, the concurrent cost of a snow blockade extending for over two months, throughout which, on some divisions, there was practically an absolute stoppage of all the traffic, and the boats between the mainland and Prince Edward Island stopped running from the latter part of January until March, causing great congestion of cars. From details furnished me, I compute that, including wages of men actually engaged in shovelling snow and picking ice, the proportion of ordinary pay rolls during the blockade, detention time, maintenance of equipment, water supply, wrecking train service, meals for passengers, and for the snow shovellers and others, and lastly, the heavy resulting adverse car mileage balance, the total direct cost was not less than $518,000 over the normal. Even, when, in March, there was a cessation of snow fall, the quantity of accumulated freight entailed extra cost in the endeavour to clear it.

By way of assistance to the farmers in the eastern part of Nova Scotia and in Prince Edward Island, who were suffering from a deficiency in the hay crops, due to the exceptional dryness of the summer of 1904, the Intercolonial, under authority of an Order in Council, carried, free of charge, hay to the extent of 36,609 tons for their use; the assistance was given by way of refund of freight charges to the extent of $125,855.46.

Though no revenue was derived from this service, the ordinary cost entailed on the railway was very considerable, over 3,000 cars being engaged in the work, and this cost was increased by the fact that the hay-laden cars arrived at the time of the snow-blockade, when no boats were running to Prince Edward Island; the railway yards were congested, and a large number of cars were stalled for months. I estimate the cost to the railway as at least $140,000. This, of course, in no way affects the principle of aiding a distressed population, through the gratuitous service of a government road, but it is only fair, in reviewing the financial side of the question, to see that while crediting to national generosity the cost involved, the railway's aggregate expenditure, in which it must be merged, is not debited, to that amount, at all events, with extravagant administration.

A large amount of work has been executed in the way of new structures and repair of old ones, at various points.

The rolling stock at the close of the fiscal year comprised 331 locomotives (a), 41 first and 35 second-class sleeping cars, 9 parlour cars, 9 dining cars, 137 first-class and 97 second-class passenger cars, 36 postal and smoking cars, 60 express and baggage cars, 5,636 box cars (b), 84 refrigerator cars (c), 123 stock cars (d), 2,840 platform cars (e), 15 oil tank cars, 999 hopper cars (f), 17 gondola (g), and 471 coal cars (h), 99 vans, 53 snow-ploughs, 23 flangers, 10 wing-ploughs, 2 rotary steam ploughs, and 3 steam cranes.*

* (a) 162 are old, small and of obsolete type and unfitted for economical operation on a road with grades such as those on the Intercolonial Railway. Of these, about one-half should, at an early date, be discarded and replaced.
(b) Of these, about 300 are from 10 to 40 years old.
(c) 5 are worn out and condemned, 10 others are over 17 years in use.
(d) 6 are worn out and condemned, and 21 are over 20 years in use.
(e) 268 are over 20 years in use, and, in addition, 1,163 are over 10 years in use.
(f) 55 are worn out and condemned ; 66 over 20 years in use, and, in addition, 129 over 15 and 175 over 10 years in use.
(g) All over 20 years in use.
(h) 358 are over 15 years old.

The value of the stores on hand at the end of the year, including fuel, and iron and steel rails, was $1,171,129.68.

The railway, its structures and rolling stock have been efficiently maintained.

Details of work executed and various interesting financial and other statements will be found in the reports of the several officers of the road in the appendices herewith.

WINDSOR BRANCH.

The road is 32 miles in length. It extends from Windsor Junction, on the Intercolonial Railway, to Windsor.

The railway is operated by the Dominion Atlantic Railway Company, formerly the Windsor & Annapolis Railway Company. The company pay all charges in connection with the working of the traffic, two-thirds of the gross earnings being allowed them, the government taking the remaining one-third, and assuming all costs of maintenance of the road and works. This arrangement is carried out under an agreement dated December 13, 1892, which extends, for a further term of 21 years, arrangements similar to those made in 1871.

All charges for superintendence and supervision of maintenance of works are borne by the government; the duty of supervision is performed by the chief officers of the Intercolonial Railway.

The gross earnings of the government (one-third of the gross receipts) amounted to $50,038.67, a decrease of $3,595.38. The expenses of maintenance amounted to $26,863.16, an increase of $2,582.07, leaving the net profit to the government $23,175.51.

All necessary repairs and renewals have been carried out, and the road has been maintained in good condition.

Details will be found in the appendices.

PRINCE EDWARD ISLAND RAILWAY.

The mileage of the railway was the same as last year, namely, 209 miles.

CAPITAL ACCOUNT.

The total cost of the road and its equipment chargeable to capital account at the close of the past fiscal year was $6,719,529.45, there having been an addition during the year of $591,412.65.

The chief items of this expenditure were in connection with the contract of the Murray Harbour branch, namely, $151,065.48, and a further sum of $133,153.85 on the Hillsborough bridge at Charlottetown, which is a part of this branch. A total of $99,971.58 was expended on the branch line from Cardigan to Montague Bridge, and $44,008.24 on the branch line to Vernon River bridge. Other items of improvement

were for increased accommodation at Charlottetown, $10,205.10, and on an extension of the railway along the water front at the same place, $11,716.96. At various points on the railway the accommodation was improved, amongst others, at Georgetown and Kensington. The sum of $22,566.05 was expended in applying Westinghouse air-brakes and air signals to cars, and $26,455.73 on applying the M.C.B. couplers to rolling stock, 21 passenger and 168 freight cars being so fitted.

REVENUE ACCOUNT.

The gross earnings amounted to $217,330.61, a decrease of $17,059.42, compared with the previous year, and the working expenses to $370,464.44, an increase of $34,769. The expenditure was in excess of the earnings to the extent of $153,133.83.

The number of passengers carried was 235,194, an increase of 10,627, producing $102,505.55, an increase of $127.06. Of freight 73,969 tons were carried, a decrease of 12,317 tons, producing $94,724.70, a decrease of $19,336.89. The earnings from mails and sundries amounted to $20,100.36, an increase of $2,150.41.

The engine mileage was 442,493 miles, an increase of 36,486 miles; the train mileage was 343,301 miles, an increase of 22,516 miles.

The working expenses per train mile were 107·91 cents, a decrease of 0·10 cents, and per mile of railway $1,772.55, an increase of $33.46 per mile.

The receipts per mile of railway amounted to $1,039.86, a decrease of $81.62.

The percentages of gross receipts were as follows: Passenger earnings 47·17 per cent, an increase of 3·49 per cent; freight 43·58 per cent, a decrease of 5·08 per cent, and other items 9·25 per cent, an increase of 1·59 per cent.

The value of stores on hand at the close of the fiscal year, including fuel and steel rails, was $88,784.61.

The decrease in the freight traffic is attributable to the failure in the crops, while the severity of the winter and snow blockades entailed heavy expenditure in operation, considerably in excess of that of the previous year.

The railway and its rolling stock are in a higher state of efficiency than at any previous time.

Details will be found in the appendices.

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

By the Act 3 Ed. VII., chap. 58 (1903) amending and consolidating the law respecting railways, the Railway Committee of the Privy Council was abolished and in lieu thereof a Board of Commissioners under the above title, was created, to consist of three members to be appointed by the Governor in Council; this Act was brought into force on February 1, 1904, by proclamation, on the authority of an Order in Council dated January 18, 1904, which also appointed certain persons as commissioners. The office of the board is at Ottawa, though it is authorized to hold

sessions in any part of Canada. Its decisions and orders are final, subject to appeal to the Supreme Court upon questions of jurisdiction or law, and also to action thereon by the Governor in Council, in his discretion.

SURVEY FOR A RAILWAY TO GIVE ACCESS TO THE YUKON DISTRICT.

In the annual report of the fiscal year 1900-01, will be found a full report from the engineer in charge on this subject and also (on p. xv) a summary of the work done and the conclusions arrived at. Previous reports were printed in the annual reports for the years 1898-99 and 1899-1900.

NATIONAL TRANSCONTINENTAL RAILWAY.

Under an agreement, dated July 29, 1903, ratified by the Dominion Act of that year, chap. 71, and under a modifying agreement dated February 18, 1904, ratified by the Act of that year, chap. 24, the Grand Trunk Pacific Railway Company, a company incorporated by the Act of 1903, chap. 122, have agreed with His Majesty in respect of the construction of a line of railway, wholly upon Canadian territory, between the city of Moncton, in the province of New Brunswick, and the navigable waters of the Pacific ocean, at or near Port Simpson or some other port in British Columbia, as may be agreed upon. The railway is to be composed of two divisions, namely, the eastern division, between Moncton and Quebec, thence westerly through the northern part of the provinces of Quebec and Ontario, and through the province of Manitoba to the city of Winnipeg, and the western division, between Winnipeg, or some point on the said eastern division, and the Pacific ocean. The eastern division is to be constructed by the government under four commissioners to be appointed by the Governor in Council, and thereafter leased to and maintained and operated by the company, who undertake to construct at their own cost and to maintain and operate the western division. The lease of the eastern division is to be for a period of 50 years, at a rental of three per cent per annum upon the cost of its construction; the first seven years of the term to be free of rent; both divisions are to be equipped by the company, the first equipment to be of a value not less than $20,000,000.

By way of assistance to the company in the construction of the western division, it is provided that the government shall guarantee payment of the principal and interest of an issue of bonds to be made by the company for an amount sufficient to produce a sum equal to 75 per cent of the cost of its construction, such amount not to exceed $13,000 per mile in respect of the prairie section from Winnipeg to the eastern limit of the Rocky mountains (such limit to be established by the Chief Engineer of the company and the Chief Engineer of the government, as the result of actual surveys to be made).

The several expenditures to be made under these Acts and agreements are to be so made from appropriations by Parliament for the purpose, and on the recommendation of the Minister of Railways and Canals, to whom accounts of all receipts, expenditures and liabilities are to be furnished monthly. The board are to furnish annually a report to the Governor in Council, through the Minister of Railways and

Canals, showing the receipts and expenditures of the year, and other information as to the railway, which report is to be submitted to Parliament.

The Board of Commissioners was duly appointed by Order in Council, together with the necessary officers, and is established with its headquarters in the city of Ottawa.

The report of the board will be laid before Parliament in due course. It may, however, be stated here that the total expenditure for the year 1904-05 amounted to $778,491.28, which, with the sum of $6,249.40 previously expended, makes the total cost $784,740.68, up to June 30, 1905.

With regard to the division of the railway to be constructed by the company, that, namely, westwards from Winnipeg, known as the 'western division,' location has been approved by an Order in Council dated August 10, 1905, of the portion extending from Portage la Prairie westwards to township 26 north, range 13, west 2nd meridian, a distance of about 275 miles. It may be observed, also, that approval, under section 122 of the Railway Act, has been given to the route map of two branch lines the company propose to construct, one, the Thunder Bay branch, from Fort William and Port Arthur to Thunder Bay Junction, a distance of about 220 miles, and the other, the North Bay branch, extending from the Nipissing junction of the Grand Trunk Railway with the Canadian Pacific Railway to Nat's Lake, Ontario, a distance of about 220 miles.

RAILWAY SUBSIDIES.

The following pages show, in alphabetical sequence, the position of those companies whose dealings with the government in respect of subsidies are not yet closed. Reports of previous years give information as to companies whose subsidies have been fully earned and paid prior to July 1, 1904.

A tabulated statement of payments will be found in Part I., and a list of subsidy agreements entered into during the fiscal year in Part IV.

The several subsidy Acts passed in each year from 1882 will be found in Part III. No subsidies were authorized in the session of 1895, 1896, 1898, 1902 and 1905.

Information has been brought down to the end of the fiscal year 1904-05, only, but, in supplement, the following list shows also the additional contracts entered into, and the payments made, between that date and December, 1905.

SUBSIDY CONTRACTS ENTERED INTO DURING 1904-05, TO JUNE 30, 1905.

Atlantic, Quebec and Western Railway Company.—From Paspebiac to Gaspé, 102 miles; contract dated February 25, 1905.

Bruce Mines and Algoma Railway Company.—From Bruce Mines Junction to town of Bruce Mines, 3 miles; contract dated January 28, 1905.

International Railway Company of New Brunswick.—From western end of its ten miles of railway constructed towards a point on the St. John river between Grand Falls and Edmundston, &c., 67 miles; contract dated May 13, 1905.

Klondike Mines Railway Company.—From Dawson to Stewart River, 84 miles; contract dated February 1, 1905.

Nicola, Kamloops and Similkameen Coal and Railway Company.—From Spence's Bridge on Canadian Pacific Railway to Nicola Lake, 45 miles; contract dated April 27, 1905.

Orford Mountain Railway Company.—From Eastman to town line between township of Bolton, east part, and township of Potton, 12 miles; contract dated March 9, 1905.

Orford Mountain Railway Company.—From Kingsbury to Windsor Mills, 10 miles; contract dated June 12, 1905.

Orford Mountain Railway Company.—From point on main line between Lawreceville and Eastman to Lake Bonella, 5 miles; contract dated June 23, 1905.

ADDITIONAL SUBSIDY CONTRACTS FROM JULY 1 TO DECEMBER 1, 1905.

Central Ontario Railway Company.—From point near Bancroft to point near Whitney; contract dated September 6, 1905.

Kettle River Valley Railway Company.—From Grand Forks to a point 50 miles up Kettle river; contract dated July 28, 1905.

Mabou and Gulf Railway Company, Limited.—From Mabou coal mines to a point near Glendyer, thence to Orangedale on I.C.R.; contract dated July 5, 1905.

Midway and Vernon Railway Company.—From Midway to Vernon; contract dated July 28, 1905.

SUBSIDIES PAID DURING THE FISCAL YEAR ENDED JUNE 30, 1905.

Atlantic and Lake Superior Railway	$ 42,336 86
Atlantic and North-western Railway	186,600 00
Algoma Central and Hudson Bay Railway	341,440 00
Beersville Coal and Railway	20,736 00
Bruce Mines and Algoma Railway	25,120 00
Canadian Pacific Railway (Kootenay and Arrowhead Branch)	4,176 15
Canadian Pacific Railway (Pheasant Hills Branch)	56,576 00
Halifax and South-western Railway	291,842 00
Lindsay, Bobcaygeon and Pontypool Railway	185,173 00
Middleton and Victoria Beach Railway	47,789 00
Orford Mountain Railway	38,250 00
St. Mary's River Railway	32,134 00
South Shore Railway (Quebec) interest on delayed payment of subsidy due	3,456 46
	$1,275,629 53

ADDITIONAL SUBSIDY PAYMENTS FROM JULY 1, 1905, TO DECEMBER 1, 1905.

Northern Colonization Railway Company	$ 87,786 00

GOVERNMENT ACTION AS TO SUBSIDIZED RAILWAYS.

(The numbers within brackets after the title of the company refer to the lists of railways for which subsidies have been authorized by Parliament year by year, from the commencement of the system of railway subsidy in 1882, in the appendices hereto.)

With regard to the several lines of railway subsidized by the Dominion, the following represents the action taken and the progress made, in so far as the Dominion government is concerned; only those lines and companies being mentioned as to which definite steps, other than merely preliminary, have been taken towards securing the subsidy.

The following shows the aggregate of the payments made on subsidy accounts:—

For the fiscal year	1883-84,	ended on June 30,	1884	$ 208,000 00
"	1884-85	"	1885	403,245 00
"	1885-86	"	1886	2,171,249 00
"	1886-87	"	1887	1,406,533 00
"	1887-88	"	1888	1,027,041 92
"	1888-89	"	1889	846,721 83
"	1889-90	"	1890	1,678,195 72*
"	1890-91	"	1891	1,265,705 87*
"	1891-92	"	1892	1,248,215 93*
"	1892-93	"	1893	811,394 07*
"	1893-94	"	1894	1,229,885 10*
"	1894-95	"	1895	1,310,549 10*
"	1895-96	"	1896	834,745 49*
"	1896-97	"	1897	416,955 30*
"	1897-98	"	1898	1,414,934 78*
"	1898-99	"	1899	3,201,220 05*
"	1899-1900	"	1900	725,720 35*
"	1900-01	"	1901	2,512,328 86*
"	1901-02	"	1902	2,093,939 00*
"	1902-03	"	1903	1,463,222 34*
"	1903-04	"	1904	2,046,878 45*
"	1904-05	"	1905	1,275,629 53*
				$29,592,310 69

To the above there have to be added the following exceptional subsidies:—

The Canada Central Railway, paid between 1878-83..	$ 1,525,250 00
The Canadian Pacific Railway extension from St. Martin's Junction to Quebec, paid in 1885.....	1,500,000 00

* In these amounts the subsidy of $186,600 a year payable to the Atlantic and North-west Railway Company, for 20 years from July 1, 1889, is included. Payment is made by the Finance Department.

Total subsidies paid from 'Consolidated Fund' up to June 30, 1905.. .. ..$32,617,560 69
The main line subsidy to the Canadian Pacific Railway was paid from 'Capital,' amounting to.. .. 25,000,000 00

Total paid as subsidies.. .. ..$57,617,560 69

The above does not include the amount $2,394,000, due to the province of Quebec for the railway between Ottawa and Quebec, which amount has been transferred to the public debt, and on which interest at 5 per cent is paid, amounting to $119,700 a year. (See note on page 49 of the accountant's statement, Part I.)

NOTE.—The names, locations and mileage of the several railways of the Dominion, together with those of the branch lines composing their system, will be found in the 'Railway Statistics,' now issued as a separate report.

ALBERTA SOUTHERN RAILWAY COMPANY.

(See Annual Report of 1891-92.)

ALGOMA CENTRAL AND HUDSON BAY RAILWAY COMPANY.

(See Nos. 437 and 479.)

This company was incorporated as 'The Algoma Central Railway Company' by the Act 62-63 Vic., chap. 50 (1899), with powers to construct a line of railway from the town of Sault Ste. Marie to a point on the Canadian Pacific Railway at or near Dalton Station, and thence south-westerly to Michipicoten Harbour, Lake Superior.

These powers were amended by the Act 63-64 Vic., chap. 49 (1900), and the company were empowered to build a railway from Sault Ste. Marie to a point between the rivers Magpie and Michipicoten, and thence to the main line of the Canadian Pacific Railway, and southerly to Michipicoten Harbour.

By the Act 1 Ed. VII., chap. 46 (1901), the name of the company was changed as above, and they were empowered to build an extension of their railway from a point on the Canadian Pacific Railway northerly to some point on James Bay, not further north than Equam river.

By the Railway Subsidy Act of 1899, 62-63 Vic., chap. 7, item 23, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for 40 miles of a railway from Sault Ste. Marie towards Michipicoten river and harbour, and towards the Canadian Pacific Railway.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on September 28, 1901, under authority or orders in council dated May 30 and August 10, 1901.

By the Railway Subsidy Act of 1900, 63-64 Vic., chap. 8, item 4, the grant of a similar subsidy to the company was authorized for an extension of 25 miles from the

end of the 40 miles section above mentioned, and also for 25 miles from Michipicoten harbour towards the main line of the Canadian Pacific Railway.

Under authority of an order in council, dated January 6, 1902, a contract was entered into with the company on February 5, 1902, for the work so subsidized.

By the Railway Subsidy Act of 1901, chap. 7, item 20, the grant of a similar subsidy was authorized for a further distance, not exceeding 135 miles, to a point on the Canadian Pacific Railway at or near White River, and a contract was entered into with the company accordingly on October 15, 1902.

During the past fiscal year there has been paid $341,440, making the total payments to this company $924,976, up to June 30, 1905.

ATLANTIC AND LAKE SUPERIOR RAILWAY COMPANY.

(See No. 524.)

This company was incorporated by the Act 56 Vic., chap. 39 (1893), with powers to construct or acquire a line of railway from a point at or near Gaspé bay in the province of Quebec, to a point at or near the St. Mary river in the district of Algoma, in the province of Ontario, and was authorized to enter into agreement with certain companies named for the purchase or lease of their railways, in whole or in part, and their franchises, between the points named.

Agreements were made by the company, and were confirmed by Parliament by the Act 57-58 Vic., chap. 63 (1894), as follows:—

(1) For the purchase of the Baie des Chaleurs Railway Company's railway and appurtenances and their franchises. (2) For the use of a bridge to be constructed across the River St. Lawrence, opposite the city of Montreal, to be built by the Montreal Bridge Company. (3) For the purchase of the Great Eastern Railway between Yamaska and St. Gregoire, in the province of Quebec. (4) For the purchase from the Ottawa Valley Railway Company of their railway between Lachute and St. Andrew's in the province of Quebec, and their franchises. The Act provided that the railways named should be completed within three years, and the bridge within five years.

Difficulties, however, arose; the property of the Atlantic and Lake Superior Railway Company was ultimately vested in the trustees of the bondholders, who, by the Act 1 Ed. VII., chap. 48, 1901, were authorized, notwithstanding anything contained in any Act of Parliament, to repair and renew the road-bed and bridges of the railway between Metapedia and Caplin, and to construct the railway from Caplin to a point near Paspebiac; such powers of construction to be exercised before December 31, 1902; also to operate the railway between Metapedia and Paspebiac, the Baie des Chaleurs division.

By the Subsidy Act of 1901, 1 Ed. VII., chap. 7, item 9, the grant of a subsidy was authorized for the 30 miles between Caplin and Paspebiac, namely, of $3,200 a mile, with a further subsidy of 50 per cent of cost in excess of $15,000 a mile; in all,

not exceeding $6,400 a mile; the subsidy contract to be made 'with the trustees or receivers under mortgage from the Atlantic and Lake Superior Railway Company.' The Act provided for payment out of the subsidy, 1st, for certain bridge superstructures, the amount being limited to $35,000; 2nd, 'for the completion of the road-bed and works incidental thereto;' 3rd, 'towards payment of overdue balances, *pro rata*, in settlement of claims for labour, boarding-house claims, and supplies furnished in connection with the said section of railway.'

Under date July 25, 1901, a subsidy contract was entered into accordingly. The road was completed, and, on inspection, was so reported in June, 1903. The question of the amount of subsidy earned remained to be decided, involving decision as to the actual, necessary and reasonable cost of this 30 miles of railway.

On examination, this cost was found to be $589,485.37, and the total subsidy earned $165,735.

By an order in council of July 23, 1904, authority was given for certain payments on that basis, and for the appointment of a special commissioner for the investigation of the various claims presented for labour, &c.

Up to June 30, 1904, payments had been made to the extent of $104,153.98. Of this total, $32,153.98 was for bridge superstructures, and $72,000 to the trustees for road-bed completion.

During the past fiscal year, there has been paid a total of $42,336.86, of which $14,675.84 was paid to the trustees for road-bed completion, and $27,661.02 for labour, &c., making the payments up to June 30, 1905, $32,153.98 for bridge superstructures, $86,675.84 for road-bed completion, and for labour, &c., $27,661.02, a total of $146,490.84. The number and amounts of the claims put forward for labour, &c., were so considerable, and they were of so complicated a character, that the necessary investigation before the apportionment of the moneys available could be made was a matter of time and difficulty. This investigation was carried out by the department, and, finally, by Judge Langelier, of Quebec, upon whose decision payments have been made as above stated.

It has to be observed that, as stated in the annual report of the department for the year 1894-95, subsidy has been paid to the Baie des Chaleurs Railway Company for the portion of this railway from Metapedia eastwardly towards Paspebiac, 70 miles, to the extent of $620,000.

ATLANTIC AND NORTH-WEST RAILWAY COMPANY.

(See Annual Report of 1889-1890.)

The full history of this subsidy was shown in the annual report for 1889-90. The company receives an annual subsidy of $186,600 for 20 years. The first payment having been made in 1889-90. The total paid up to June 30, 1905, is $2,985,600. Payment is made by the Department of Finance direct.

ATLANTIC, QUEBEC AND WESTERN RAILWAY COMPANY.

(See No. 595.)

This company was incorporated by the Act of Quebec, 1 Ed. VII., chap. 63 (1901), with powers to construct a railway from Gaspé Basin to some point north of Causapscal, but not beyond Sayabec, in the county of Matane. Other powers were granted of a general commercial character.

By the Dominion Act, 3 Ed. VII., chap. 81 (1903), the above company was declared to be for the general advantage of Canada, and authority was granted to them, in addition to that conferred by their Act of incorporation, to construct a railway from a point north of Causapscal on the Intercolonial Railway, to a point at or near Edmundston, N.B.

By the Dominion Subsidy Act, 3 Ed. VII., chap. 57, item 51, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15.000 a mile, limited in all to $6,400 a mile, was authorized for a railway from Gaspé to a point at or near Causapscal on the Intercolonial Railway, and from that point to Edmundston, not exceeding 260 miles; and for a railway from Paspebiac to Gaspé, not exceeding 102 miles.

The company having applied for the subsidy granted for the line from Paspebiac to Gaspé, a contract was entered into with them, accordingly, on February 25, 1905, under authority of order in council dated January 28, 1905.

No payments have been made up to June 30, 1905.

BAIE DES CHALEURS RAILWAY COMPANY.

(See Annual Report of 1895-96.)

(See also Atlantic and Lake Superior Railway Company.)

THE BAY OF QUINTÉ RAILWAY COMPANY.

(See Nos. 434 and 581.)

This company was incorporated by the Dominion Act of 1881, chap. 46, under the name 'The Bay of Quinté Railway and Navigation Company,' with powers to construct a line of railway from Mill Point, county of Hastings, on the Bay of Quinté, to a point of junction with the Grand Trunk Railway.

By the Act of 1896 it was empowered to amalgamate with the Kingston, Napanee and Western Railway Company (formerly the Napanee, Tamworth and Quebec Railway Company), under the name of the Bay of Quinté Railway Company. Its powers were extended to cover the construction of branch lines, not exceeding 20 miles in length, each to connect with mines and mineral lands, and by the Act of 1900, chap. 50, extensive powers were conferred for development of electrical power, and for mining and timber industries. Their powers of construction were extended to June 14, 1905.

By the Subsidy Act of 1899, chap. 7, item 20, as amended by clause 9 of the Subsidy Act of 1900, chap. 8, the grant of aid was authorized to the extent of $3,200 per mile for 10 miles, for extensions, branches and additions to connect their lines of railway or to connect the said lines or connecting lines with iron or other mines or mineral or wood lands in certain counties named. This was in lieu of part of the balance of subsidy granted to the Kingston, Napanee and Western Railway in 1892.

Under date of December 30, 1902, a subsidy contract was entered into with them accordingly.

By the Subsidy Act of 1899, chap. 7, item 45, the grant of aid to the extent of $3,200 per mile with an addition of 50 per cent on average expenditure in excess of $15,000 per mile, the whole not exceeding $6,400 per mile, was authorized for an extension not exceeding 2 miles, of the company's line, westerly, from a point at or near Richmond Boundary Road, near Desoronto, and also for an extension from the end of the said two miles, northerly, for a distance not exceeding 3 miles.

Under date of December 30, 1903, a separate contract was entered into with the company for each of these two sections.

During the fiscal year 1902-03 payment was made of $19,200 for the six miles between Deseronto and Napanee, under the subsidy granted by item 20 of the Act of 1899.

By the Subsidy Act of 1903, chap. 57, item 37, the grant of aid to the extent of $3,200 per mile with an addition of 50 per cent on the average expenditure in excess of $15,000 per mile, the whole not exceeding $6,400 per mile, was authorized for further extension of the company's line of railway, from the northern terminus thereof, commencing from a point at or near Actinolite, thence in a north-westerly direction via the villages of Queensboro' and Bannockburn, to a point in the township of Marmora or Lake in Hastings county, not exceeding 20 miles in all.

Under date of January 23, 1904, a subsidy contract was entered into with the company for the construction of this extension.

The total payments to this company on subsidy account amounted to $69,120, up to June 30, 1904; but there had been previously paid to the Kingston, Napanee and Western Railway Company a total of $208,732.80.

No further payments were made up to June 30, 1905.

BEERSVILLE COAL AND RAILWAY COMPANY.

(See No. 604.)

This company was incorporated by the Act of New Brunswick, 3 Edward VII., chap. 94 (1903), with power to construct a railway from Adamsville on the Intercolonial Railway to a point at or near Brown's Landing or Beersville, and also to carry on the business of coal mining in all its branches, and other privileges in connection therewith.

By the Subsidy Act of 1903, chap. 57, item 60, a subsidy was authorized for 7 miles of the company's railway from Adamsville to Brown's Landing or Beersville, $3,200 a mile, with a further subsidy of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile.

The company were admitted to contract on June 24, 1904, the road to be completed by January 1, 1905.

During the past fiscal year, subsidy was paid for this work to the extent of $20,736, the total paid up to June 30, 1905.

BEAUHARNOIS JUNCTION RAILWAY COMPANY.

(See Annual Report of 1895-96.)

BELLEVILLE AND NORTH HASTINGS RAILWAY COMPANY.

(See Annual Report of 1888-89.)

BOSTON AND NOVA SCOTIA COAL COMPANY.

(See Annual Report of 1895-96.)

BRACEBRIDGE AND TRADING LAKE RAILWAY COMPANY.

This company was incorporated by the Act 63 Vic., chap. 109 (Ontario), with powers to construct a line of railway to be operated by steam or electricity, or partly by steam and partly by electricity, from a point in the town of Bracebridge to some point in the township of McLean, a distance of about fourteen miles, and to construct, extend and operate a continuation or branch of such railway from Bracebridge to some point on Muskoka Lake at or near Beaumaris, in the township of Monck, a distance of about ten miles, all in the district of Muskoka.

By the Railway Subsidy Act of 1900, 63-64 Vic., chap. 8, item 7, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400, was authorized for a railway from Bracebridge, in Muskoka, to a point at or near Baysville, Ont., not exceeding 15 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on December 30, 1902, under authority of Order in Council, dated April 6, 1903.

No payments have been made up to June 30, 1905.

BROCKVILLE, WESTPORT AND SAULT STE. MARIE RAILWAY COMPANY.

(See Annual Report of 1896-97.)

BRANTFORD, WATERLOO AND LAKE ERIE RAILWAY COMPANY.

(See Annual Report of 1895-96.)

BRUCE MINES AND ALGOMA RAILWAY COMPANY.

(See No. 628.)

The history of this railway was given in the annual report for 1902-03, with a statement of the subsidies paid for the then completed line of railway.

By the Subsidy Act of 1904, chap. 34, section 2, item 2, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for lines of railway (a) from Bruce Mines Junction southerly to the town of Bruce Mines, not exceeding 3 miles; (b) for 6 miles of railway constructed from Gordon Lake Station northward to Rock Lake. (c) for 12 miles from Rock Lake northward.

The company having applied for subsidies (a) and (b), contracts were entered into with them, accordingly, on January 28, 1905, and October 20, 1904, respectively, under authority of orders in council dated January 7, 1905, and September 19, 1904.

These two sections of railway are completed, and during the past fiscal year the full amount of the subsidies, $25,120, has been paid, making the total payments to the company $53,920.

BUCTOUCHE AND MONCTON RAILWAY COMPANY.

(See Annual Report of 1893-94.)

CALGARY AND EDMONTON RAILWAY COMPANY.

(See Annual Report for 1890.)

(Leased to Canadian Pacific Railway.)

CANADA ATLANTIC RAILWAY COMPANY.

(See Annual Report of 1888-89; also see under head of Ottawa, Arnprior and Parry Sound Railway Company.)

CANADA EASTERN RAILWAY CO. (FORMERLY NORTHERN AND WESTERN RAILWAY COMPANY OF NEW BRUNSWICK, NOW PART OF THE INTERCOLONIAL RAILWAY SYSTEM.)

(See the Annual Reports for the years 1894-95 and 1899-1900.)

CANADIAN BRIDGE COMPANY.

(See South Shore Railway Company, Quebec.)

CANADIAN NORTHERN RAILWAY COMPANY.

(See Nos. 446, 493.)

By the Dominion Act 62-63 Vic., chap. 57 (1889), authority was granted for the amalgamation of the Winnipeg Great Northern Railway Company (formerly the Winnipeg and Hudson's Bay Railway and Steamship Company, the name of which was by the Act of 1887, chap. 81, changed to the Winnipeg and Hudson's Bay Railway Company), and the Lake Manitoba Railway and Canal Company, under the name of the Canadian Northern Railway Company, and the agreement for such amalgamation was confirmed; authority also was given for the construction of a railway from Prince Albert to Edmonton, also a branch from a point on that line to the Peace river, together with certain other branch lines.

The Dominion Act 1 Ed. VII., chap. 52 (1901), confirmed certain agreements for amalgamation of the Manitoba and South-eastern Railway Company and the Ontario and Rainy River Railway Company with the above company; it also granted authority to construct certain lines of railway described.

By the Dominion Act 1 Ed. VII., chap. 53 (1901), authority was granted to the above company, to lease, with the option of purchase the Northern Pacific and Manitoba Railway, the Winnipeg Transfer Railway Company, Limited, the Portage and North-western Railway Company, and the Waskada and North-eastern Railway Company.

By the Dominion Subsidy Act 62-63 Vic., (1889), chap. 7, item 32, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 100 miles of railway from a point on the Winnipeg Great Northern Railway north of Swan river to Prince Albert, N.W.T.

By the Dominion Subsidy Act 63-64 Vic (1900), chap. 8, item 18, the grant of a similar subsidy for 100 miles of railway in further extension of the company's line from north of Swan river towards Prince Albert, was authorized.

The company having applied, they were admitted to contract under both subsidies, the two agreements being dated December 7, 1903.

The payments made to this company under the aforesaid agreements aggregate the following amounts:—

For the Ontario and Rainy River Railway (see the Annual Report for 1902-03), $1,534,976, all paid prior to June 30, 1903.

For the Prince Albert Branch, $374,156.

The total of the above payments amounts to $1,909.132, up to June 30, 1904.

By the Special Act 3 Ed. VII., chap. 7 (1903), assistance was granted for the extension of the company's railway for 620 miles from Grandview, the terminus of their Gilbert Plains branch to Edmonton, and for a distance of 100 miles east of Prince Albert to Prince Albert, by guaranteeing the principal and interest at 3 per

cent per annum of first mortgage bonds and other securities to the extent of $13,000 a mile, the principal to be payable in 50 years from the passage of the Act.

Under date July 29, 1903, a trust mortgage between the Canadian Northern Railway Company, the British Empire Trust Company, Limited, the National Trust Company, Limited, and His Majesty was executed in pursuance of the provisions of the said Act, the security to be held by the trustees to be a charge on the two lines of railway thereunder to be constructed, with their equipment, buildings and appurtenances, on the balance of the Prince Albert Branch east of Erwood, and on the company's already constructed and operated lines from Port Arthur westwards as enumerated in a schedule attached, with their buildings, equipment and appurtenances.

Under the same date, July 29, 1903, an agreement was made with the company for the construction of the said two lines of railway, accordingly the line from Grandview to Edmonton to be completed by October 1, 1905, and the 100 miles east from Prince Albert by the same date.

Under orders in Council of November 5, 1903, March 10, 1904, August 18, 1904, and January 13, 1905, authority has been given for the payment out of moneys deposited with the government as proceeds of the company's stock, for that purpose, under the said agreement of the sum of $6,125,600, for the work executed on the 620 miles between Grandview and Edmonton, and of the sum of $936,000, for work on the 100 miles east from Prince Albert, being the proportion of the guarantee earned for the execution of 76 per cent of the estimated cost, $11,341,300, of the work to be done on the 620 miles, including equipment, and of 72 per cent of the estimated cost, $1,709,115, of the work to be done on the 100 miles, including equipment.

This represents the position up to June 30, 1905.

For certain portions of the company's lines, under the aforesaid amalgamations, land grants have been authorized (see Winnipeg Great Northern Railway Company and Manitoba and South-eastern Railway Company in annual report for 1895-96.) These matters are dealt with by the Department of the Interior.

The company further, by virtue of this amalgamation, have an agreement with the government for the transport of men, supplies, materials and mails for 20 years over the portion of their line from Gladstone to a point half way to the River Saskatchewan.

CANADIAN PACIFIC RAILWAY COMPANY.

(Revelstoke to Arrow Lake.)

(See Annual Report for 1896-97.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Pipestone Branch—Antler Station to Moose Mountain.)

(See Annual Report for 1901-02.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Crow's Nest Pass Railway.)

(See Annual Report for 1902-03.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Waskada Branch.)

(See No. 494.)

By the Railway Subsidy Act of 1900 62-64 Vic., chap 8, item 19, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, but not exceeding in all $6,400 a mile, was authorized for a railway from the westerly end of the Waskada branch of the Canadian Pacific Railway, Manitoba, for 20 miles further.

That company having applied for the said subsidy, a contract was entered into with them for the work on December 28, 1901, under authority of orders in council, dated July 6, September 11, October 3, and November 30, 1901. No portion of the subsidy was paid up to June 30, 1902.

In the fiscal year 1903-04 payments were made to the extent of $64,000.

No further payments have been made up to June 30, 1905.

CANADIAN PACIFIC RAILWAY COMPANY.

(Pheasant Hills Branch.)

(See No. 616.)

By the Subsidy Act of 1903, Ed. VII., chap. 57, item 72, the grant of a subsidy of $3,200 a mile with an addition of 50 per cent on cost in excess of $15,000 a mile, but not exceeding in all $6,400 a mile, was authorized for a railway from a point on the main line of the Canadian Pacific Railway between Moosomin and Elkhorn, northwesterly to a point in the neighbourhood of the Pheasant Hills, not exceeding 136 miles.

The company having applied, a contract was entered into with them on January 14, 1904, under authority or orders in council of November 17, 1903, and January 12, 1904.

During the past fiscal year, subsidy was paid for this work to the extent of $56,576, making the total payments up to June 30, 1905, $435,200.

CANADIAN PACIFIC RAILWAY COMPANY.

(Dyment Branch.)

(See Annual Report for 1902-03.)

CANADIAN PACIFIC RAILWAY COMPANY.

(West Selkirk—Lake Winnipeg Branch.)

(See Annual Report for 1902-03.)

CAP DE LA MADELEINE RAILWAY COMPANY.

(See Annual Report of 1896-97.)

CAPE BRETON RAILWAY EXTENSION COMPANY, LIMITED.

(See Annual Report of 1895-96.)

(See No. 420.)

This company was incorporated by 62 Vic., chap. 126 (1899), of the Acts of Nova Scotia, with powers to construct a railway between Canso and Louisburg and to construct a bridge or tunnel over or under the Straits of Canso, or to operate a ferry.

By the Nova Scotia Act of 1902, chap. 190, it was further empowered to build branches from any point on its main line or branches to any other point in the county of Cape Breton.

By the Subsidy Act of 1899, 62-63 Vic., chap. 7, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the average cost in excess of $15,000 a mile, in all not exceeding $6,400 a mile, was authorized in aid of a railway from Port Hawkesbury, on the Strait of Canso, N.S., to St. Peter's, 30 miles.

The above company, having applied, were admitted to contract for work on September 15, 1900. Payments have been made up to June 30, 1904, of $182,400.

No further payments have been made up to June 30, 1905.

CENTRAL COUNTIES RAILWAY COMPANY.

(See No. 574.)

This company was originally incorporated by the Dominion Act 50-51 Vic., chap. 82, under the name of the Prescott County Railway, with powers to construct and operate a railway from a point in or near the village of Hawkesbury, in the county of Prescott, to a point on the line of the Ontario and Quebec Railway in the county of Soulanges, in the province of Quebec, and to a point on the line of the Canada Atlantic Railway, in the county of Glengarry, and to the River St. Lawrence, in or near the town of Cornwall, with a branch to Caledonia Springs.

By the Dominion Act 52 Vic., chap. 80, the name of the company was changed to the above, and power granted to construct a bridge across the Ottawa river. By a further Dominion Act, 2, Edward VII., chap. 53, power was granted for the extension of the railway from Hawkesbury to South Indian.

This railway has been leased to, and is now operated by, the Canada Atlantic Railway Company.

By the Dominion Subsidy Act of 1903, 3 Edward VII., chap. 57, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 35 miles, and has been granted to this company, in lieu of the subsidy authorized by item 22 of sec. 2 of chap. 7 of 1899.

Application having been made, the company was admitted to contract for this work on December 26, 1903, under authority of the Order in Council of December 12, 1903.

No payments have been made up to June 30, 1905.

CENTRAL ONTARIO RAILWAY COMPANY.

(See Annual Report for 1900-01.)

CENTRAL RAILWAY COMPANY OF NEW BRUNSWICK.

(See Annual Report for 1902-03.)

CHATEAUGUAY AND NORTHERN RAILWAY COMPANY.

(See Nos. 507, 508, 509, 599.)

This company was incorporated by the Quebec Act of 1895 (1), chap. 64, its powers of construction being modified by the Act, chap. 75 of 1896.

By the Dominion Subsidy Act of 1900, 63-64 Vic., chap. 8, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 42 miles of a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway in or near the town of Joliette, with a spur into the town.

The company were admitted to contract for this work on January 19, 1901.

On the same date they were admitted to contract for two other works, specially subsidized by the same Act, viz., for a railway, vehicular, and foot-passenger bridge from Bout de L'Isle to Charlemagne, at the junction of the Rivers Ottawa and St. Lawrence, $150,000, and for a bridge across the Lac Ouareau river, $15,000. No portion of these three subsidies has been paid up to June 30, 1903.

By the Dominion Subsidy Act of 1903, chap. 57, item 55, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 16 miles of a railway from a point on its main line at or near L'Epiphanie, via the parish of St. Jacques de l'Achigan to the village of Rawdon.

The company were admitted to contract for this work on December 12, 1903.

By the Dominion Subsidy Act of 1903, chap. 57, sec. 3, sub-sec. 4, a subsidy was authorized for the Bout de L'Ile bridge of $50,000, in addition to that granted by item 33 of section 2, of chap. 8, of 1900.

The total of the payments made to the company up to June 30, 1904, amounted to $191,595.

No further payments have been made up to June 30, 1905.

CHATHAM BRANCH RAILWAY COMPANY.

(See Annual Report of 1893-94.)

CHIGNECTO MARINE TRANSPORT COMPANY.

(See Annual Report for 1894-95.)

COAST RAILWAY COMPANY OF NOVA SCOTIA.

(Name changed to Halifax and Yarmouth Railway Company by Nova Scotia Statute of 1899, chap. 128.)

(See Nos. 403, 520.)

This company was incorporated by the Provincial Act of Nova Scotia, 56 Vic., chap. 154 (1893), to build a line of railway from Yarmouth to Lockport; a subsequent Act, 59 Vic., chap. 103 (1896), extending its powers.

By the Dominion Subsidy Act, 60-61 Vic., chap. 4 (1897), the grant of a subsidy to this company for 61 miles of their railway from Yarmouth to Port Clyde was authorized, the amount being $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile.

The company were admitted to contract on August 26, 1897, the road to be completed by September 1, 1899.

During the year 1897-98 they were paid the sum of $90,400.

By the Subsidy Act of 1901, chap. 7, item 5, the grant of aid was authorized for a line of railway from Pubnico, N.S., to Port Clyde, or Clyde river, $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, for 31 miles.

This was in lieu of the unexpended balance of the subsidy granted in 1897.

The company having applied were admitted to contract on March 1, 1903.

Payment of subsidy to the extent of $150,400 had been made up to June 30, 1904.

No further payments have been made up to June 30, 1905.

COMPAGNIE DU CHEMIN DE FER DE COLONISATION DU NORD.

(See No. 451.)

This company was incorporated by the Dominion Act 62-63 Vic., chap. 62 (1899), with powers to construct and operate a railway from a point in or near Labelle, in the

county of Labelle, Quebec, and passing within a mile of the parish church of L'Annonciation, in the township of Marchand, in the said county, and within a mile of the parish church in the village of Nomininguc, in the township of Loranger, and within a mile of the village of Rapide de L'Orignal, in the townships of Robertson and Campbell, and thence in a westerly direction to a point at or near Lake Temiscamingue in the county of Pontiac.

By the Railway Subsidy Act 62-63 Vic., chap. 7 (1899), item 37, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on the average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a railway for a distance not exceeding 22 miles from Labelle in a north-westerly direction, to Nomininguc, via Notre Dame de l'Annonciation.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on July 8, 1902.

Payment has been made to the extent of $53,384, up to June 30, 1904.

No further payments have been made up to June 30, 1905.

COBOURG, NORTHUMBERLAND AND PACIFIC RAILWAY COMPANY.

(See Annual Report for 1900-01.)

COLUMBIA AND KOOTENAY RAILWAY AND NAVIGATION COMPANY.

(Leased to the Canadian Pacific Railway Company.)

(See Annual Report for 1891-92.)

CORNWALLIS VALLEY RAILWAY COMPANY.

(See Annual Report for 1891-92.)

CUMBERLAND RAILWAY AND COAL COMPANY.

(See Annual Report for 1894-95.)

DOMINION ATLANTIC RAILWAY COMPANY.

(See Western Counties Railway Company.)

DOMINION EASTERN RAILWAY COMPANY.

(See Annual Report for 1900-01.)

DOMINION LIME COMPANY.

(See Annual Report for 1888-89.)

DOMINION COAL COMPANY.

(See Annual Report for 1895-96.)

DRUMMOND COUNTY RAILWAY COMPANY.

(See Annual Report of 1900-01.)

EAST RICHELIEU VALLEY RAILWAY COMPANY.

(See Annual Report of 1888-89.)

EDMONTON, YUKON AND PACIFIC RAILWAY COMPANY.

(See Nos. 455, 572.)

This company was incorporated by the Dominion Act of 1896, 59 Vic., chap. 71, under the name of the Edmonton District Railway, with powers to construct and operate a railway from some point within the town of Edmonton to a point in South Edmonton on the Calgary and Edmonton Railway and to connect therewith; also from some point within the town of Edmonton, via the village of St. Albert, to a point on the Athabaska river, at or near Fort Assiniboine, with a branch to Stony Plains; also from some point within the town of Edmonton to a point at or near Fort Saskatchewan, together with a branch to a point on Sturgeon river. Other powers were granted of a general commercial character.

By the Dominion Act of 1898, 61 Vic., chap. 63, the company was empowered to extend their line of railway from the Athabaska to the navigable waters of Pelly river.

By the Dominion Act of 1889, 62-63 Vic., chap. 64, the name of the company was changed to the above, with powers to extend the railway via the Yellow Head Pass or the Peace River Pass, to a point in British Columbia, or to connect with the railway which the British Pacific Railway Company is authorized to construct, and also to construct and operate a branch line to some point on the Yukon river.

By the Dominion Subsidy Act of 1903, 3 Edw. VII., chap. 57, item 28, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 50 miles of a railway from the town of Strathcona to Edmonton, and thence westerly towards the Yellow Head Pass.

The company having applied for this subsidy, a contract was entered into with them, accordingly on June 24, 1904, the road to be completed by December, 1906.

No payments have been made up to June 30, 1905.

ELGIN, PETITCODIAC AND HAVELOCK RAILWAY COMPANY.

(See Annual Reports for 1885-86 and 1890-91.)

ERIE AND HURON RAILWAY COMPANY.

(See Annual Report for 1886-87.)

ESQUIMALT AND NANAIMO RAILWAY COMPANY.

(See Annual Report for 1886-87.)

FREDERICTON AND ST. MARY'S BRIDGE COMPANY.

As stated in the annual report for the year 1888-89, by the special Act 50-51 Vic., chap. 26, (1887), the Governor in Council was authorized to make advances to the extent of $300,000, (secured by mortgage) to the above company, in aid of the construction of a railway bridge over the St. John river, and advances were made accordingly to the extent of $297,000.

By the Dominion Act of 1904, chap. 4, the Governor in Council was authorized to enter and take possession of the property of the company together with all its rights and privileges, default having been made in repayment of the said advances, and interest thereon, such property has become forfeited to the Crown. The requisite legal steps having been taken to obtain possession of the property, it is now included in the Intercolonial Railway system.

GRAND TRUNK, GEORGIAN BAY AND LAKE ERIE RAILWAY COMPANY.

(See Annual Report for 1893-94.)

GRAND TRUNK RAILWAY COMPANY.

(See Annual Report of 1900-01.)

GREAT EASTERN RAILWAY COMPANY.

(See Annual Report for 1896-97.)

GREAT NORTHERN RAILWAY OF CANADA (FORMERLY THE GREAT NORTHERN RAILWAY COMPANY).

(See Annual Report for 1902-03.)

GULF SHORE RAILWAY COMPANY OF NEW BRUNSWICK.

(See Annual Report for 1899-1900.)

GUELPH JUNCTION RAILWAY COMPANY.

(See Annual Report of 1888-89.)

HALIFAX AND SOUTH-WESTERN RAILWAY COMPANY.

(See Nos. 567, 619.)

This company was declared to be incorporated under date of the 21st day of August A.D. 1901, by the Act of the province of Nova Scotia, 2 Edward VII., chap. 1 (1902), for the construction and operation of a railway from a point on the Intercolonial Railway at or near Halifax to Barrington Passage, and also from a junction with the Central Railway, at or near New Germany, to Caledonia Corners.

By the Dominion Subsidy Act of 1903, chap. 57, items 23 and 75, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for lines of railway (*a*) from a point at or near Halifax to a point on the Central Railway at or near Mahone Bay, 68 miles; (*b*) from a point on the Central Railway at or near Bridgewater towards Barrington Passage, 77 miles, and an addition to and continuation of the same, 35 miles; (*c*) from a point at or near New Germany on the Central Railway to a point at or near Caledonia, 22 miles; (*d*) and from a point at or near Caledonia to Liverpool, 29 miles.

The company was admitted to contract on November 9 1903; the time for completion being fixed as August 1, 1905.

During the past fiscal year payments have been made to the extent of $291,842, making the total payments up to June 30, 1905, $477,264.

HALIFAX AND YARMOUTH RAILWAY COMPANY.

(Formerly the Coast Railway Company of Nova Scotia, which see.)

(Name changed by Nova Scotia Statute of 1899, Chap. 128.)

(See Annual Report for 1902-03.)

HARVEY BRANCH RAILWAY COMPANY.

(See Annual Report of 1889-90.)

HEREFORD RAILWAY COMPANY (FORMERLY HEREFORD BRANCH RAILWAY COMPANY).

(See Annual Report of 1891-92.)

INTERNATIONAL RAILWAY COMPANY.

(See Annual Reports of 1887-88 and 1889-90.)

INTERNATIONAL RAILWAY COMPANY OF NEW BRUNSWICK.

(See Restigouche and Western Railway Company.)

This company was incorporated by letters patent, dated May 19, 1903, in pursuance of the Act of the legislature of New Brunswick of that year, entitled 'An

Act in aid of the construction of certain railways,' with powers to construct a line of railway commencing at the terminus of the first section of 10 miles of railway extending from Campbellton, N.B., westward, built for the Restigouche and Western Railway Company, to the St. John river at a point between Grand Falls and Edmundston, with power to acquire the said 10 miles already built, and to issue debentures on the said line of railway, including the first section of 10 miles, when acquired, to the extent of $5,000 per mile; the capital stock to be $600,000, with provision for increase to $1,500,000.

By the Subsidy Act of 1903, chap. 57, item 14, authority was given for the grant of a subsidy to the above company for a line of railway from the western end of the 10 miles of its railway already constructed from Campbellton towards a point on the St. John river between Grand Falls and Edmundston, not exceeding 67 miles, being in lieu of previous subsidies.

Under date of May 13, 1905, a subsidy contract was entered into with the company accordingly, under the authority of an Order in Council of the 8th of that month.

No payments have been made up to June 30, 1905.

INVERNESS RAILWAY AND COAL COMPANY.

(Name changed from Inverness and Richmond Railway Company by the Act of the province of Nova Scotia, 2 Edward VII., chap. 162 of 1902.)

(See Nos. 208, 251, 357, 400, 523 and 568.)

This company was incorporated by the Act of the province of Nova Scotia, 50 Vic., chap. 60 (1887), with powers for the construction of a line of railway between Hawkesbury and a point in the district of Margaree. By the Act of 1888, chap. 79, the location of the line was authorized as from Port Hawkesbury, through Port Hastings, Judique, Port Hood, Mabou and Margaree, to a point at Eastern Harbour, Cheticamp.

By the Subsidy Act, 57-58 Vic., chap. 4 (1894), assistance to the extent of $80,000 was authorized for 25 miles of railway from Port Hawkesbury towards Cheticamp, and the above company was admitted to contract for the work on November 23, 1894.

By the Subsidy Act of 1897, 60-61 Vic., chap. 4, in lieu of the subsidy granted in 1894, a subsidy of $3,200 a mile with an addition of 50 per cent on expenditure in excess of $15,000 a mile, such subsidy in all not to exceed $6,400 a mile, was authorized for a railway from Port Hawkesbury to Port Hood and Broad Cove, 53 miles, and the company was admitted to contract thereunder on April 29, 1898.

By the Subsidy Act of 1903, chap. 57, item 24, the grant of a subsidy for 30 miles of railway from Cheticamp to a point on the line already built between Broad Cove and Point Tupper, being a revote and in substitution of the subsidy granted by chap. 4 of 1897, was authorized.

The company was admitted to contract on November 9, 1903; the time for completion being fixed as August 1, 1905.

The total payments up to June 30, 1904, amounted to $368,545.97.

No further payments were made up to June 30, 1905.

IRONDALE, BANCROFT AND OTTAWA RAILWAY COMPANY.

(See Annual Report for 1900-01.)

JOGGINS RAILWAY COMPANY.

(See Annual Report for 1891-92.)

KINGSTON, NAPANEE AND WESTERN RAILWAY COMPANY.

(See Napanee, Tamworth and Quebec Railway.)

KINGSTON AND PEMBROKE RAILWAY COMPANY.

(See Annual Report for 1884-85.)

KLONDIKE MINES RAILWAY COMPANY.

(See No. 615.)

This company was incorporated by the Dominion Act of 1899, chap. 72, with powers for the construction of a line of railway from Klondike City along the Klondike river to Bonanza Creek, and thence along the Yukon river to Dawson City, together with power to construct certain branch lines. Other powers of a general commercial character were granted.

By the Subsidy Act of 1903, chap. 57, section 2, item 71, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from Dawson to Stewart river, not exceeding 84 miles.

The company having applied for this subsidy, a contract was entered into with them for the work on February 1, 1905, under authority of orders in council of March 7 and December 24, 1904, and January 7, 1905.

No payments have been made up to June 30, 1905.

KOOTENAY AND ARROWHEAD RAILWAY COMPANY.

(See No. 543.)

This company was incorporated by the Act 1, Ed. VII., chap. 70 (1901), with powers to construct a railway from a point at or near Lardo, near the head of Koote-

nay lake, to a point at or near Duncan; thence north-westerly to Arrowhead on Arrow lake, B.C., together with such branch lines, none to exceed 30 miles, as may be authorized by the Governor in Council. The company were empowered to lease or sell their works to certain companies named, including the Canadian Pacific Railway Company.

On August 15, 1901, this railway was leased to the Canadian Pacific Railway Company for a term of 999 years. The leasing was approved by an Order in Council of June 29, 1903.

By the Subsidy Act of 1901, chap. 7, item 28, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, limited to $6,400 in all, was authorized for a railway from Duncan lake towards Lardo or Arrow lake, B.C., or from Lardo to Arrow lake, not exceeding 30 miles.

The company having applied for this subsidy, a contract was entered into with them for the work on August 26, 1901, under authority of Orders in Council of June 8 and July 6, 1901; the time for completion being fixed as August 1, 1903. The road was built from Lardo to Trout lake, 33 miles, and was inspected in June, 1902, with a view to its being opened for public traffic.

During the past fiscal year, subsidy was paid to the extent of $4,176.15, making the total payments up to June 30, 1905, $64,790.

LAURENTIAN RAILWAY COMPANY.

Formerly 'the Lake Erie, Essex and Detroit Railway Company.' Name changed by Dominion Act, 54-55 Vic., chap. 88 (1891).

(See Annual Report for 1901-02.)

L'ASSOMPTION RAILWAY COMPANY.

(See Annual Report of 1886-87.)

LEAMINGTON AND ST. CLAIR RAILWAY COMPANY.

(See Annual Report of 1888-89.)

LAKE TEMISCAMINGUE COLONIZATION RAILWAY COMPANY.

(See Annual Report of 1896-97.)

LAURENTIAN RAILWAY COMPANY.

(See St. Lawrence, Lower Laurentian and Saguenay Railway Company.)

LINDSAY, BOBCAYGEON AND PONTYPOOL RAILWAY COMPANY.

(See Nos. 197, 271, 372, 425, 545.)

This company was incorporated by the Dominion Act 53, Vic., chap. 55 (1890), with powers to construct a railway from a point at or near Pontypool on the line of

the Canadian Pacific Railway, thence via Lindsay to the village of Bobcaygeon. The company were empowered to lease or sell their works to certain companies named, including the Canadian Pacific Railway Company.

The charter originally granted was revived and amended by the Act 55-56 Vic., chap. 78.

By the Subsidy Act of 1903, chap. 57, item 2, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from Burketon to Bobcaygeon, not exceeding 40 miles, in lieu of the subsidy granted by item 11 of section 2 of chap. 7 of 1899.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on March 14, 1904.

The sum of $185,173.06 was paid during the past fiscal year, the total paid up to June 30, 1905.

LOTBINIÈRE AND MEGANTIC RAILWAY COMPANY.

(See Annual Report of 1896-97.)

MAGNETAWAN RIVER RAILWAY COMPANY.

This company was incorporated by the Act 1 Edward VII. (Ontario), chap. 83 (1901), with powers to construct a railway between a point in or near the village of Burk's Falls, in the district of Parry Sound, and a point on the Magnetawan river, in the said district of Parry Sound, where the said river is navigable for vessels.

By the Railway Subsidy Act, 1 Edward VII., chap. 7 (1901), item 22, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on an average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a line of railway from a point on the Grand Trunk Railway at or near Burk's Falls, Ontario, to the Magnetawan river, not exceeding two miles.

The company having applied for this subsidy, a contract was entered into with them accordingly, on March 19, 1903.

During 1902-03 there was paid to the company the sum of $3,552.

No further payments were made up to June 30, 1905.

MANITOULIN AND NORTH SHORE RAILWAY COMPANY.

(See No. 481.)

This company was incorporated by the Dominion Act of 1900, chap. 64, 63-64 Vic., with powers to construct a line of railway from Little Current, Manitoulin Island, to a point 100 miles northerly, crossing the Canadian Pacific Railway at or near Onaping or Cartier stations; also from a point in or near the township of Drury or Hyman, on its said line, easterly to Sudbury, also from a point at or near Little

Current, south-easterly to the south shore of Manitoulin Island, or Fitzwilliam Island, and from a point near Tobermory to Meaford, passing through Wiarton and Owen Sound; also with powers for dock construction, ferry operation, and electric power production.

By the Subsidy Act of 1900, chap. 8, item 6, aid was authorized towards the construction of 66 miles of the company's railway from Little Current to Sudbury; the company to construct a bridge between Little Current and the mainland, with free provision for vehicular and passenger traffic.

By an Act of 1901, section 5, work under the foregoing subsidy was allowed to be carried on in two sections, the first beginning at Victoria Mines and extending to Sudbury and thence to Lake Wahnapitae, not exceeding 33 miles, the second beginning at Little Current and extending to and connecting with the Canadian Pacific Railway at or near Stanley, not exceeding 31 miles.

Under date of May 15, 1902, a contract was entered into with the company under the above subsidy for a railway from Victoria Mines to Sudbury and thence to Lake Wahnapitae.

During the year 1902-03 there was paid to the company the sum of $32,000.

No further payments were made up to June 30, 1905.

MASSAWIPPI VALLEY RAILWAY COMPANY.

(See Annual Report for 1900-01.)

MIDDLETON AND VICTORIA BEACH RAILWAY COMPANY.

(See Nos. 503, 536 and 566.)

This company was incorporated by the statute of Nova Scotia, 60 Vic., chap. 82 (1897), as 'the Granville and Victoria Beach Railway and Development Company,' with powers to build a line of railway from some point on the Dominion and Atlantic Railway at or near Bridgetown, through Granville, to some point at or near Victoria Beach on the Annapolis Basin, with approved branches, &c. This Act was revived by the Act of 1899, chap. 129. It was further revived by the Act of 1901, chap. 160, and extended for six years; the name being changed to the 'Middleton and Victoria Beach Company.'

By the Railway Subsidy Act of Canada, 63-64 Vic., chap. 8, item 28, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 30 miles of a railway from Bridgetown to Victoria Beach, Nova Scotia.

The above company having applied, they were admitted to contract for the work on May 5, 1902, under authority of an Order in Council of April 1, the railway to be completed by December 1, 1903.

By the Subsidy Act of 1901, chap. 7, item 21, a similar subsidy was authorized to be granted for an extension from Bridgetown to Middleton, not exceeding 11 miles, and the company having applied for it, a contract was made with them, accordingly, on May 5, 1902, under authority of an Order in Council of April 1, the work to be completed by December 1, 1903.

By the Subsidy Act of 1903, chap. 57, item 2, a similar subsidy was authorized for 41 miles of railway from Victoria Beach to Middleton, in lieu of subsidies granted by chap. 8 of 1900, and chap. 7 of 1901.

Application having been made, the company was admitted to contract for this work on December 28, 1903, the time for completion being fixed as by August 1, 1905.

The sum of $47,789 was paid during the past fiscal year, the total paid up to June 30, 1905.

MIDLAND RAILWAY COMPANY, LIMITED.

(See Annual Report of 1903-04.)

MONTFORT COLONIZATION RAILWAY COMPANY.

(See Annual Report for 1900-01.)

MONTFORT AND GATINEAU COLONIZATION RAILWAY COMPANY.

(Now part of Great Northern Railway Company of Canada.)

(See Annual Report for 1902-03.)

MONTREAL AND CHAMPLAIN JUNCTION RAILWAY COMPANY.

(See Annual Report for 1892-93.)

MONTREAL AND LAKE MASKINONGÉ RAILWAY COMPANY.

(See Annual Report for 1890-91.)

MONTREAL AND SOREL RAILWAY COMPANY.

(See Annual Report for 1892-93.)

MONTREAL AND WESTERN RAILWAY COMPANY.

(See Annual Report for 1893-94.)

MONTREAL AND OTTAWA RAILWAY COMPANY.

(*Formerly the* VAUDREUIL AND PRESCOTT RAILWAY COMPANY. *Name changed by 53 Vic., ch. 58.*)

(See Annual Report for 1898-99.)

MONTREAL AND PROVINCE LINE RAILWAY COMPANY.

(See Annual Report for 1901-02.)

NAPANEE, TAMWORTH AND QUEBEC RAILWAY COMPANY.

(*Name changed to the* KINGSTON, NAPANEE AND WESTERN RAILWAY COMPANY *by the Act 53 Vic., ch. 62.*)

(See Annual Report for 1895-96.)

NAKUSP AND SLOCAN RAILWAY COMPANY.

(See Annual Report for 1894-95.)

NEW BRUNSWICK AND PRINCE EDWARD ISLAND RAILWAY COMPANY.

(See Annual Report for 1888-89.)

NEW BRUNSWICK COAL AND RAILWAY COMPANY.

(See No. 522.)

This company was incorporated by the Act 1 Edward VII., chap. 77 (New Brunswick), with powers to construct a line of railway from Chipman to Gibson, with the right to build branches thereto and connecting with any railway or railways in New Brunswick.

By the Subsidy Act of 1901, 1 Edward VII., chap. 7, item 7, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400, was authorized for a line of railway from Chipman station, New Brunswick, to Gibson, in lieu of the subsidies granted by 1897, chap. 4, and 1899, chap. 7, sec. 2, item 31, not exceeding 45 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on June 30, 1902.

The total paid up to June 30, 1904, amounted to $48,000.

No further payments were made up to June 30, 1905.

NEW GLASGOW IRON, COAL AND RAILWAY COMPANY.

(See Annual Report for 1895-96.)

NICOLA, KAMLOOPS AND SIMALKAMEEN COAL AND RAILWAY COMPANY.

(See No. 570.)

This company was incorporated by the British Columbia Act of 1891, chap. 47, with powers to construct a single or double track line of railway from the eastern ex-

tremity of Nicola lake; thence to the town of Princeton, and thence by way of Similkameen river in a southerly direction to Osoyoos lake; also from the terminus at Nicola in a northerly direction to the town of Kamloops. Other powers of a general commercial character were granted.

By the Subsidy Act of 1903, chap. 57, section 2, item 26, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from a point at or near Spence's Bridge on the Canadian Pacific Railway to Nicola lake, not exceeding 45 miles, being a revote of subsidies granted by chap. 5 of 1892 and chap. 4 of 1894.

The company having applied for this subsidy, a contract was entered into with them for this work on April 27, 1905, under authority of an Order in Council of April 20, 1905.

No payments have been made up to June 30, 1905.

NORTHERN AND PACIFIC JUNCTION RAILWAY COMPANY.

(See Annual Report of 1890-91.)

NORTHERN AND WESTERN RAILWAY COMPANY.

(See Annual Report of 1889-90.)

(Also under the head 'Canada Eastern Railway' in Annual Report of 1894-95.)

NOVA SCOTIA CENTRAL RAILWAY COMPANY.

(See Annual Report for 1898-99.)

NOVA SCOTIA EASTERN RAILWAY COMPANY, LIMITED.

(See Nos. 516, 519, 563, 607.)

This company was incorporated by the Act 1, Edward VII., chap. 130 (Nova Scotia), with powers to construct a line of railway from a point on the Intercolonial Railway at or near New Glasgow, in the county of Pictou, and passing through the counties of Pictou and Guysborough, to the deep waters of Country Harbour, in the county of Guysborough, and from the Cross Roads, Country Harbour, in the said county of Guysborough, to a point at or near the town of Guysborough, and thence to a point on the Strait of Canso, in the said county of Guysborough, and such other lines as may become feeders for the main trunk line above described.

By the Subsidy Act of 1901, 1 Edward VII., chap. 7, item 1, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400, was authorized for a line of railway from a point on the Intercolonial Railway, at or near New Glasgow

to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysborough, in lieu of the subsidies granted by 1897, chap. 4, and 1899, chap. 7, sec. 2, item 34, not exceeding 80 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on February 19, 1903.

By the Subsidy Act of 1903, chap. 57, items 19 and 63, the grant of subsidies was authorized, on terms similar to the above, for lines of railway from New Glasgow to Cross Roads, Country Harbour, via Guysborough, to the Straits of Canso, with a branch from Cross Roads down the Country Harbour river to navigable waters, 116 miles; and from Dartmouth through the Musquodoboit valley to a point at or near Melrose, to connect there with the railway mentioned in item 19.

The company having applied, were admitted to contract under both subsidies, the two agreements being dated April 19, 1904; the railways to be completed by December 31, 1906.

No payments have been made up to June 30, 1905.

NOVA SCOTIA SOUTHERN RAILWAY COMPANY.

(See Annual Report for 1902-03.)

ONTARIO AND PACIFIC RAILWAY COMPANY.

(*Name changed to* OTTAWA AND NEW YORK RAILWAY COMPANY, *by 60-61 Vic., ch. 57, 1897.*

(See Annual Report for 1901-02.)

ONTARIO AND QUEBEC RAILWAY COMPANY.

(See West Ontario Pacific Railway Company, and Annual Report for 1891-92.)

ONTARIO, BELMONT AND NORTHERN RAILWAY COMPANY.

(See Annual Report for 1896-97.)

ONTARIO AND RAINY RIVER RAILWAY COMPANY.

(*Amalgamated with and under the name of the* CANADIAN NORTHERN RAILWAY COMPANY *under the Act 62-63 Vic., ch. 80.*

(See Ontario and Rainy River Railway Company in Annual Report for 1902-03, and under Canadian Northern Railway Company in present report.)

ORFORD MOUNTAIN RAILWAY COMPANY.

(See Annual Reports for 1893-94 and 1894-95.)

(See No. 594.)

The history of this railway was given in the annual report for 1894-95, with a statement of the subsidies paid for the then completed line of railway.

By the Subsidy Act of 1903, chap. 57, section 2, item 594, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for a line of railway from a point on its main line between Lawrenceville and Eastman to Lake Bonella, 5 miles; from Kingsbury to Windsor Mills, 10 miles; and from Eastman to the town line between the township of Bolton and the township of Potton, 12 miles —not exceeding in the whole 27 miles.

The company having applied for these subsidies, contracts were entered into with them, accordingly, on March 9, and June 12 and 23, 1905, for the construction of the sections above named, under the authority of orders in Council dated March 25, 1905, for the two first named sections of 5 and 10 miles, and on February 10, 1905, for the last named section.

During the past fiscal year, payments have been made to the extent of $38,250, making the total paid up to June 30, 1905, including previous subsidies, $123,050.

OTTAWA AND NEW YORK RAILWAY COMPANY.

(See Ontario and Pacific Railway Company.)

OTTAWA, ARNPRIOR AND PARRY SOUND RAILWAY COMPANY.

(*Now the* CANADA ATLANTIC RAILWAY COMPANY, *by amalgamation, under the Act 62-63 Vic., ch. 81, 1899*

(See Annual Report for 1898-99.)

OTTAWA AND GATINEAU VALLEY RAILWAY COMPANY.

(*Name changed to the* OTTAWA AND GATINEAU RAILWAY COMPANY, *by the Act 57-58 Vic., ch. 87, which consolidated and amended Acts relating to the company.*)

(*Name further changed to the* OTTAWA NORTHERN AND WESTERN RAILWAY COMPANY, *by the Act 1 Edw. VII., ch. 80, 1901.*

(See Annual Report for 1903-04.)

OTTAWA NORTHERN AND WESTERN RAILWAY COMPANY.

(See Ottawa and Gatineau Valley Railway Company, and Pontiac Pacific Junction Railway Company.)

OSHAWA RAILWAY AND NAVIGATION COMPANY.

(*Name changed to the* OSHAWA RAILWAY COMPANY, *by 54-55 Vic., ch. 91.*)

(See Annual Report for 1895-96.)

PARRY SOUND COLONIZATION RAILWAY COMPANY.

(See Annual Report for 1895-96.)

PEMBROKE SOUTHERN RAILWAY COMPANY.

(See Annual Report for 1899-1900.)

PHILLIPSBURG JUNCTION AND QUARRY COMPANY.

(See Annual Report for 1894-95.)

(*Now the* PHILLIPSBURG RAILWAY AND QUARRY COMPANY. *Name changed by 58 Vic., ch. 65, 1895*

(See Annual Report for 1899-1900.)

PORT ARTHUR, DULUTH AND WESTERN RAILWAY COMPANY.

(*Formerly the* THUNDER BAY COLONIZATION RAILWAY COMPANY.)

See Annual Report for 1892-93.)

PONTIAC AND RENFREW RAILWAY COMPANY.

(See Annual Report for 1899-1900.)

PONTIAC PACIFIC JUNCTION RAILWAY COMPANY.

(See Annual Report for 1900-01.)

QU'APPELLE, LONG LAKE AND SASKATCHEWAN RAILWAY COMPANY.

Leased to Canadian Pacific Railway Company.

(See Annual Report for 1890.)

QUEBEC BRIDGE COMPANY.

(*Now the* QUEBEC BRIDGE AND RAILWAY COMPANY,—*name changed by the Act 3 Ed. VII., ch. 177, 1903.*)

(See No. 467 and Acts, chaps. 54 and 177 of 1903.)

This company was incorporated by the Dominion Act. 50-51 Vic., chap. 98 (1887), with powers to construct a railway bridge over the River St. Lawrence near Quebec.

and to arrange the same for the use of foot passengers and vehicles, and to construct and operate lines of railway to connect with existing or future lines of railway on each side of the river.

By the Act 60-61 Vic., chap. 69 (1897), the powers of the company were revived, and the time for construction was extended to June 29, 1902.

By the Act 63-64, Vic., chap. 115 (1900), the time for completion was extended to June 14, 1905, and the company were further empowered to arrange for the placing of electric wires on the bridge and connecting railways, and for the passage of electric street railway or tram cars.

By the Railway Subsidy Act, 62-63 Vic., chap. 7 (1899), the grant of a subsidy to this company of $1,000,000 was authorized for a railway bridge over the River St. Lawrence at Chaudière basin, and by the Act of 1900, chap. 8, clause 10, it was made applicable, one-third to the substructure and approaches, and two-thirds to the superstructure.

On November 12, 1900, the company were admitted to contract for this subsidy work.

The site and plans of the bridge were approved by the Railway Committee of the Privy Council, and by an order in council dated May 16, 1898.

The structure is to be a cantilever bridge, composed of two approach spans of 220 feet each, two anchor spans of 500 feet each, and a centre span of 1,800 feet from centre to centre of the piers. The under side of the bridge will give a height of 150 feet above high water. When completed, it will comprise a double track railroad, two lines for electric tramways, and two ordinary roads for vehicles and foot passengers.

Subsidy payments to the extent of $374,353.33 were made up to June 30, 1903. No further payments have been made.

By the Dominion Special Act, 3 Ed. VII., chap. 177, assented to on July 10, 1903, the name of the above company was changed to 'The Quebec Bridge and Railway Company,' with powers to construct lines of railway from the northern terminus of the company's bridge to the city of Quebec, also from the southern terminus of the said bridge to a point at or near the intersection of the Grand Trunk Railway with the Intercolonial Railway at Chaudière Curve, or to some point on those lines near named section to connect with the line of the Canadian Pacific Railway. Other powers of a general commercial character were granted. The powers of the company for the construction of all its authorized works was extended to July 10, 1910.

Negotiations were had having in view entry into agreement for the guarantee by the government of the bonds of the company, and for conveying to the government, at its option, the bridge, railways and property of the company.

Under the authority of an order in council, dated October 19, 1903, and under the same date, the company entered into an agreement with the government, accordingly, subject to ratification by Parliament; and by Public Act of the same year, 1903, chap. 54, such agreement, annexed as a schedule to the Act, was so ratified and

confirmed, subject to the provision that the consent of parliament shall be given before the government exercise the right of taking over the company's property. It was further provided that the Governor in Council should have the right to appoint three directors of the company.

By this agreement the company releases the government from any claim for the unpaid balance of the subsidy of $1,000,000 granted to them, and the government agrees to guarantee the principal and interest of the company's bonds to the extent of $6,678,200, such bonds to be payable in 50 years from the date thereof, bearing interest at 3 per cent per annum, payable half-yearly, and to be a first charge, secured by a mortgage, upon all the company's franchises, tolls, and property of whatsoever kind, the mortgage to secure such securities to be made to a trustee or trustees approved by the Governor in Council and to be subject to like approval, the government to have the right to take possession of the undertaking and property at any time on one month's notice, paying the shareholders the amount of their stock at par value, not exceeding $265,585.70, with simple interest at 5 per cent, and an addition of 10 per cent on the par value of fully paid up shares, and assuming the approved obligations of the company for construction, operation and maintenance, according to the terms of the aforesaid bonds and the mortgage securing the same. The date for the completion of the works was fixed as by December 1, 1906.

In pursuance of this authority there was executed, on February 1, 1904, between the Quebec Bridge and Railway Company, the Royal Trust Company (Montreal), and His Majesty, a mortgage trust deed, conveying to the said trust company as trustees all the property and franchises of the bridge company and providing for the issue of bonds to the extent of $6,678,200.

In pursuance of the requirements of the said agreement, the plans, profiles and specifications of the company's proposed railway works have been approved, as follows:—

By order in council of January 27, 1904, for the line from the northern terminus of the bridge to Champlain market, in the city of Quebec, 6·44 miles, and by an order in council of February 2, 1904, from the south terminus of the bridge to a point of junction with the Intercolonial Railway, 12,600 feet.

Under the terms of the company's aforesaid agreements in respect of the bond guarantee, the amount of the issue of bonds is to be fixed by the Chief Engineer's certificate as to the value of the work done and materials delivered, from time to time, on the company's works.

Up to June 30, 1904, no issue of bonds had been authorized.

During the past fiscal year, certificates have been issued by the Chief Engineer, showing a value of work done and materials delivered to the extent of $1,989,162.85, justifying an issue of bonds to the extent of $2,340,186.

This represents the position up to June 30, 1905.

QUEBEC CENTRAL RAILWAY COMPANY.

(See Annual Report of 1895-96.)

QUEBEC AND LAKE ST. JOHN RAILWAY COMPANY.

(See Annual Report of 1895-96.)

QUEBEC, MONTMORENCY AND CHARLEVOIX RAILWAY COMPANY.

(See Annual Report for 1894-95.)

QUEBEC AND NEW BRUNSWICK RAILWAY COMPANY.

(See No. 517.)

This company was incorporated by the Act (1900), 63-64 Vic., chap. 75, with powers to construct a railway from Connor station on the St. Francis Branch of the Temiscouata Railway (New Brunswick) to a point on the Intercolonial Railway at or near St. Charles Junction, or a point on the Quebec Central Railway at or near St. Anselme, or a point on the Grand Trunk Railway at or near Chaudière Junction (Quebec) a distance of about one hundred and thirty miles.

By the Railway Subsidy Act of 1901, 1 Edward VII., chap. 7, item 2, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on an average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a railway from a point at or near St. Charles or at or near Chaudière Juction or a point on the Quebec Central Railway, near St. Anselme, towards the present terminus of the St. Francis Branch of the Temiscouata Railway, not exceeding 45 miles, and for a line of railway from the mouth of the St. Francis river, New Brunswick, westerly towards Chaudière Junction, not exceeding 15 miles, in lieu of the subsidy granted by 1900, chap. 8, sec. 2, item 23; also for a line of railway in extension of the St. Francis Branch of the Temiscouata Railway to the mouth of the St. Francis river, New Brunswick, in lieu of the subsidy granted by 1899, chap. 7, sec. 2, item 43, not exceeding 3 miles; in all not exceeding 63 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on August 25, 1902.

No payments have been made up to June 30, 1905.

RED DEER VALLEY RAILWAY AND COAL COMPANY.

(See Annual Report for 1902-03.)

RESTIGOUCHE AND WESTERN RAILWAY COMPANY.

(Now International Railway Company of New Brunswick, which see.)

(See Annual Report for 1903-04.)

SCHOMBERG AND AURORA RAILWAY COMPANY.

(See Annual Report of 1903-04.)

SHUSWAP AND OKANAGAN RAILWAY COMPANY.

(See Annual Report of 1894-95.)

SOUTH NORFOLK RAILWAY COMPANY.

(See Annual Report of 1888-89.)

SOUTH SHORE RAILWAY COMPANY (of New Brunswick).

(See Annual Report of 1896-97.)

SOUTH SHORE RAILWAY COMPANY, QUEBEC.

(See 441, 468, 469 and 513.)

This company was incorporated by the Quebec Act of 1894, chap. 72, and the undertaking was declared to be a work for the general advantage of Canada by the Dominion Act, 60 Vic., chap. 10 (1896), which authorized the construction of a line of railway from a point in the town of Lévis to a point on the Canada Atlantic Railway at or near Valleyfield.

By the Subsidy Act, 62-63 Vic., chap. 7 (1899), the grant of a subsidy to this company for 82 miles of a railway from Sorel Junction to Lotbinière was authorized, $3,200 a mile, with an addition of 50 per cent of cost in excess of $15,000 a mile but not exceeding in the whole $6,400 a mile. The company were admitted to contract for this work on May 9, 1900.

By the same Act the grant of a subsidy was authorized towards the construction of a bridge over the River Richelieu at Sorel, not exceeding $35,000. The company were admitted to contract for this work on December 23, 1899.

By the same Act the grant of a subsidy to this company was authorized towards the renewal of the railway bridge over the River Yamaska at Yamaska, the amount being $50,000. They were admitted to contract for the work on May 9, 1900.

By the Subsidy Act, 63-64 Vic., chap. 8 (1900), the grant of subsidy to the extent of $50,000 was authorized for a railway bridge over the River St. Francis, such bridge to be free to foot passengers and vehicles. A contract was entered into with the company for the work on June 29, 1901.

By the Subsidy Act of 1903, chap. 57, sec. 3, subsec. 2, the grant of a subsidy of $50,000 was authorized towards the construction of a steel superstructure of a railway bridge on the St. Francis river, county of Yamaska, in lieu of the grant under item 38 of sec. 2 of chap. 8 of 1900, but subject to the same conditions as expressed therein, the subsidy to be payable to the Canadian Bridge Company.

A contract was entered into for this work accordingly on December 21, 1903.

By the same section of the said Act, subsec. 3, the grant of a subsidy was authorized to the Canadian Bridge Company of Walkerville, to strengthen and complete the foundation and approaches to the bridge over the St. Francis river, subsidized in favour of the above company by section 3, of chap. 7, of 1899, $35,000, which amount shall remain the first charge on the road, and shall be recouped to the treasury out of subsidies earned or to be earned.

A contract was entered into for this work accordingly on December 21, 1903.

The total of the payments made to the company up to June 30, 1904, amounted to $199,784.35. This includes the sum of $16,164.63 for completing the Montreal and Sorel Railway. (See Annual Report of 1899-1900.)

In addition to the subsidy payments above referred to, payment was made to the Canadian Bridge Company, during the past fiscal year, of the sum of $3,456.46, as interest on delayed payment of subsidy due, out of the balance remaining available of the subsidy, $50,000, granted to that company, as contractors under the South Shore Railway Company, by the Act of 1903, chap. 57, sec. 3, subsec. 2; such payment having been made on the advice of the Department of Justice and under the authority of an order in council dated July 8, 1904.

ST. CATHARINES AND NIAGARA CENTRAL RAILWAY COMPANY.

(See Annual Report for 1895-96.)

ST. CLAIR FRONTIER TUNNEL COMPANY.

(See Annual Reports of 1890-91 and 1891-92.)

ST. GABRIEL DE BRANDON AND STE. EMÉLIE DE L'ENERGIE RAILWAY COMPANY.

(See Annual Report for 1902-03.)

ST. JOHN VALLEY AND RIVIÈRE DU LOUP RAILWAY COMPANY.

(See Annual Report for 1893-94.)

ST. STEPHEN AND MILLTOWN RAILWAY COMPANY.

(See Annual Reports for 1895-96 and 1900-01.)

STEWIACKE VALLEY AND LANSDOWNE RAILWAY COMPANY.

(See Annual Report for 1895-96.)

ST. LAWRENCE AND ADIRONDACK RAILWAY COMPANY.

(See Annual Reports for 1893-94 and 1900-01.)

ST. LAWRENCE, LOWER LAURENTIAN AND SAGUENAY RAILWAY COMPANY.

(Name changed to LAURENTIAN RAILWAY COMPANY, *by Provincial Act 51-52 Vic., ch. 108.)*

(See Annual Report for 1891-92.)

ST. LOUIS AND RICHIBUCTO RAILWAY COMPANY.

(See Annual Report for 1884-85.)

ST. MARY'S RIVER RAILWAY COMPANY.

(See Nos. 495, 614.)

This company was incorporated by the Dominion Act, 63-64 Vic., chap. 79 (1900), with powers to construct a railway from some point between Lethbridge and Stirling, on the railway of the Alberta Railway Company to some point on the international boundary line, between ranges 24 and 30, west of the 4th meridian, N.W.T., and, with the approval of the Governor in Council, to build branch lines, limited to 15 miles each in length.

By the Dominion Act 4, Ed. VII., chap. 43 (1904), this company has been authorized to amalgamate with the Alberta Railway and Coal Company and the Canadian North-west Irrigation Company, under the name of the Alberta Railway and Irrigation Company.

By the Subsidy Act of 1903, chap. 57, item 70, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line of railway from Spring Coulee, crossing St. Mary's river at Cardston, 16 miles, and from a point on this line to or near the intake of the irrigation canal, about 16 miles, in all, not exceeding 32 miles.

The company having applied, they were admitted to contract, on March 14, 1904, the lines to be completed by August 1, 1905.

During the past fiscal year, subsidy was paid to the extent of $32,134, making the total payments up to June 30, 1905, $148,094.

TÉMISCOUATA RAILWAY COMPANY—RIVIÈRE DU LOUP TO EDMUNDSTON.

(See Annual Report for 1892-93.)

THOUSAND ISLANDS RAILWAY COMPANY.

(See Annual Reports for 1895-96 and 1901-02.)

TILSONBURG, LAKE ERIE AND PACIFIC RAILWAY COMPANY.

(See Annual Report for 1895-96.)

(No. 387.)

A further subsidy to this company was authorized by the Act 60-61 Vic., chap. 4 (1897), namely, for 3·50 miles from the then terminus, through Tilsonburg to the Michigan Central Railway, $3,200 a mile, with an addition of 50 per cent of the cost in excess of $15,000 a mile, the whole not to exceed $6,400 a mile.

Under date December 4, 1897, the company were admitted to contract. During the fiscal year 1898-99 the sum of $10,912 was paid, and in the fiscal year 1900-01 the sum of $7,159.48 was paid from this subsidy, making, with their previous subsidy of $51,200, paid in 1895-96, a total of $69,271.48.

By the subsidy Act, 62-63 Vic., chap. 7, item 26 (1899), a subsidy of $3,200 per mile, with a further sunbsidy of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for an extension from Tilsonburg to Ingersoll or Woodstock, not exceeding 28 miles.

Under authority of an order in council of September 11, 1901, a contract was made with the company accordingly on October 15, 1901; the road to be completed by October 1, 1902.

Up to June 30, 1904, payment had been made to the extent of $117,431.48.

No further payments were made up to June 30, 1905.

TOBIQUE VALLEY RAILWAY COMPANY.

(See Annual Report for 1893-94.)

TORONTO, GREY AND BRUCE RAILWAY COMPANY.

(See Annual Report for 1887-88.)

TRANS-CANADA RAILWAY COMPANY.

(See No. 540.)

This company was incorporated under the name of 'The Trans-Canadian Railway Company,' by the Act 58-59 Vic., chap. 28 (1895), with powers to construct a railway from a point at or near the city of Quebec; thence westerly and as nearly as practicable in a straight line to a point north of Lake Winnipeg; thence westerly by way of the Yellow Head or other convenient and practicable pass in the Rocky mountains; and thence by the Skeena river to Port Simpson or Port Essington, with the option of adopting any other more feasible route west of the Rocky mountains to reach a point on the Pacific coast between fifty-two and fifty-five degrees north latitude.

Powers were also given for operation of vessels in connection with their railway; for wharf, dock, elevator and warehouse construction, and for production and use of electric power. also for telegraph and telephone lines to any point on James' bay, Hudson bay and Hudson straits.

Additional powers were given by the Act of 1894, chap. 65, for the construction of a branch from the main line at the St. Maurice river, Quebec, thence southerly to the village of Montcalm in the parish of St. Liguori, and thence in a direct line to the city of Montreal; the construction of such a branch not to be commenced until after two hundred miles of the main line beginning at the city of Quebec has been constructed and put into operation. This Act also changed the name of the company.

By the Act 2, Edw. VII., chap. 108 (1902), the time for the construction of the railway authorized by the above Acts, was extended to May 15, 1912: their powers of construction were also extended as follows:—To enable the company to 'continue the construction of its main line, which was commenced at Roberval on the Quebec and Lake St. John Railway, from that point in a westerly or north-westerly direction,' and to build 'a branch line from the nearest point on its main line to deep water near the mouth of the Nottaway river,' (which empties into James' bay), and also 'a branch line from Chicoutimi to the mouth of the Saguenay river at or near St. Catharine's bay'; also, with the sanction of the Governor in Council, to enter into an agreement with the Great Northern Railway of Canada, the Quebec and Lake St. John Railway Company, or the Canadian Northern Railway Company, for conveying or leasing its railway, or for an amalgamation with such company.

By the Railway Subsidy Act of 1901, 1 Edw. VII., chap. 71, item 25, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized 'for a line of railway from Roberval, Quebec, westward towards James' bay, not exceeding 60 miles.'

The company having applied for this subsidy, a contract was entered into with them accordingly on January 19, 1903.

No payments have been made up to June 30, 1905.

UNITED COUNTIES RAILWAY COMPANY.

(See Annual Report for 1900-01.)

VAUDREUIL AND PRESCOTT RAILWAY COMPANY.

(See Montreal and Ottawa Railway Company.)

WATERLOO JUNCTION RAILWAY COMPANY.

(See Annual Report for 1891-92.)

WESTERN COUNTIES RAILWAY COMPANY.

(*Name changed to* THE YARMOUTH AND ANNAPOLIS RAILWAY COMPANY, *by 56 Vic., ch. 63.*)

(*Name further changed to* THE DOMINION ATLANTIC RAILWAY COMPANY, *by 57-58 Vic., ch. 69.*)

(See Annual Report for 1894-95.)

WEST ONTARIO PACIFIC RAILWAY COMPANY.

(*Leased to Ontario and Quebec Railway Company—C.P.R.*)

(See Annual Report of 1890-91.)

WOODSTOCK AND CENTREVILLE RAILWAY COMPANY.

(See Annual Report for 1895-96.)

YARMOUTH AND ANNAPOLIS RAILWAY COMPANY.

(See *Western Counties Railway Company.*)

YORK AND CARLETON RAILWAY COMPANY.

(See Annual Report for 1901-02.)

LAND SUBSIDIES.

A number of companies have been aided by subsidies in land, duly authorized by Parliament and granted by the Department of the Interior, to whose report reference must be had for information as to their position.

In the annual report of this department for 1895-96 information was given as to a number of these land subsidized companies.

CANALS.

The total expenditure charged to capital account on the original construction and the enlargement of the several canals of the Dominion, up to June 30, 1905, was $89,294,758.39. A further sum of $22,342,500.96 has been expended from the consolidated fund, including the repairs, renewals, maintenance and operation of these works, making a total of $111,637,259.35. The total revenue derived, including tolls, and rentals of lands and water-powers, amounted to $13,405,515.56. (See the accountant's statements, Part I.)

The expenditure on canals for the fiscal year ended on June 30, 1905, was as follows:—

On construction and enlargement, a total of $2,071,593.72 charged to capital and a further sum, charged to the consolidated fund, of $1,252,111.03 for repairs, renewals, operation, and revenue collection, making a total for the year of $3,323,704.75.

The total net revenue collected for the fiscal year was $78,009.21. No tolls were charged on any of the canals.*

On July 1, 1904, the balance of rents unpaid was $97.955.81. The rents accrued during the year amounted to $114,396.26. The rents received amounted to $76,546.46, leaving a balance of rents uncollected on June 30, 1905, amounting to $133,686.47.

The total expenditure on canal staff and maintenance, repairs and renewals amounting, for the year, to $1,252,111.03, an increase of $152,339.35, and the total net receipts amounting, as above, to $78,009.21, the amount of such expenditure in excess of receipts was $1,174,101.82.

The above figures relate to the fiscal year 1904-05, but very voluminous statistics relating to the canal traffic, and various commercial statistics, for the season of navigation of the year 1904 will be found in the 'Canal Statistics,' which are issued as a separate report.

The principal facts of the statistics are, however, summarized as follows:—

The total traffic through the several canals of the Dominion for the season of 1904 amounted to 8,256,236 tons, a decrease of 947,581 tons compared with the previous year. This includes 5,030,705 tons passing through the Sault Ste. Marie canal, against 5,511,868 tons in 1903. The amount of tolls that would have accrued had they been in force would be $288,966.55.

The following features of the principal canal traffic during the season of 1904 will be of interest:—

On the Welland canal 811,371 tons of freight were moved, a decrease of 191,548 tons, of which 374,750 tons were agricultural products, a decrease of 169,243 tons, and 181,705 tons produce of the forest; of coal 103,329 tons were carried; 626,163 passed eastward, and 185,208 tons westward. 802,480 tons were through freight, of which 620,078 tons passed eastward.

Of the through freight, Canadian vessels carried 308,722 tons, a decrease of 91,769 tons, and United States vessels 311,356 tons, a decrease of 167,970 tons.

The total freight passed eastward and westward through this canal to United States ports was 252,481, a decrease of 117,744 tons compared with the year 1903.

The quantity of grain passed down the Welland and St. Lawrence canals to Montreal was 198,246 tons, a decrease of 153,690 tons compared with the previous year; of this, none was transhipped at Ogdensburg, as against 40,641 tons tran-

* All tolls were, by orders in council of April 27, and May 19, 1903, abolished for the seasons of 1903 and 1904, as an experiment—and by an order of June 22, 1905, the system of charging tolls was definitely abandoned thenceforward on all the canals of the Dominion.

shipped in 1903. The further quantity of 21,830 tons of grain passed down the St. Lawrence canals, only, to Montreal, making the total 220,076 tons.

On the St. Lawrence canals 1,427,316 tons of freight were moved, a decrease of 253,890; of which 645,999 were east bound through-freight, and 195,599 tons west bound through-freight, 507,895 tons were agricultural products, 605,198 tons merchandise, 467,430 tons coal, and 210,989 tons forest products.

Seventy-two cargoes, aggregating 116,095 tons, were taken to Montreal in 1904, seventy-four cargoes of grain, aggregating 99,582 tons, were taken down direct to Montreal through the Welland and St. Lawrence canals in 1903, as against thirty-seven aggregating 35,253 tons, in 1902, twenty-two cargoes, aggregating 17,303 tons, in 1901, and fifteen cargoes, aggregating 7,924 tons in 1900.

On the Ottawa river canals the total quantity of freight moved was 335,993 tons, a decrease of 74,627, of which 312,216 tons were produce of the forest.

On the Chambly canal 448,187 tons were moved, an increase of 74,627, of which 313,986 tons were produce of the forest, and 81,292 tons of coal.

On the Rideau canal 55,120 tons were carried, a decrease of 5,960; 22,564 tons being the product of the forest, and 10,383 tons of coal.

On the St. Peters canal 73,416 tons were carried, a decrease of 17,446, of which 49,324 tons were merchandise, 40,244 tons coal.

On the Murray canal 28,439 tons passed, a decrease of 1,950, and 5,128 tons of this were the product of the forest.

On the Trent Valley canal, 45,689 tons were moved, of which 44,414 tons were the product of the forest.

On the Sault Ste. Marie canal, the total movement of freight was 5,030,705 tons, being a decrease of 481,163 tons carried in 3,962 vessels, the number of lockages being 3,022. Of wheat 29,793,453 bushels, and of other grain 3,345,468 bushels were carried; 1,924,260 barrels of flour, 2,432,778 tons of iron ore, 987,319 tons of coal, and 18,787,980 feet, board measure, of lumber; all these items show a decrease. The total traffic at this point, accommodated by the canals, the American and Canadian, amounted to 31,538,621 tons, a decrease of 3,135,816 tons, carried in 16,115 vessels, a decrease of 2,480. The total quantity of wheat carried was 50,041,845 bushels, a decrease of 11,342,707, and of other grain 31,223,047 bushels, a decrease of 872,599. Of lumber the total was 913,111,980 feet, board measure, a decrease of 164,080,020.*

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* From a highly interesting and valuable 'Statistical Report of Lake Commerce' passing through the Canals at Sault Ste. Marie, both American and Canadian, prepared under the direction of Lieut.-Col. Charles E. L. B. Davis, of the Corps of Engineers, U.S. Army, from the official records of the canals, the following interesting items have been compiled. As indicating the wonderful growth of the vast areas of population and enterprise during the past few years, the enormous financial, commercial and industrial interests involved, the capacity of the great west for the supply of the agricultural and mining needs of the eastern world, these statistics are of the highest importance and deserve most careful consideration, especially so when it is held in mind that they represent merely the water-borne traffic, and that the transport by rail, in all its many ramifications, remains still to be regarded in any estimation of the magnificent progress of this section of the continent since the date of the opening

In connection with the question of canal versus railway transport of grain from the west, it may be noted that whereas grain and pease passed down to Montreal through the Welland and St. Lawrence canals to the extent of 198,246 tons, a decrease of 153,690 tons, compared with the previous year, the quantity carried to Montreal via the Canadian Pacific and Grand Trunk railways amounted to 154,625 tons, a decrease of 99,334 tons. Over the route from Depot Harbour on Georgian bay, Lake Huron, via the Canada Atlantic Railway to Coteau Landing, at the head of the Soulanges canal, thence by barge to Montreal, in the season of 1903 the total freight carried was 315,779 tons, 109,937 tons were corn and 175,954 wheat; in 1904, the total freight carried was 209,260 tons; 61,675 tons were corn and 137,338 tons were wheat.

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of the first ship canal (an American work) in 1855. To what a gigantic extent this lake traffic has developed can be gathered by the simple statement that in 1861 the freight carried amounted to 87,847 net tons (2,000 lbs.) valued, in round numbers, at $6,000,000; in 1891 the freight increased to 8,888,759 tons, valued at $128,178,208, and in 1902, to the highest point yet reached, namely, 35,965,146 tons, valued at $358,306,300. From 1855 to 1904, exclusive, the total quantity of goods passed through these canals amounted to 354,247,159 tons, during the decade from 1894 to 1904, the average percentage of yearly increase of traffic is 12 per cent, the quantity of freight carried aggregating 253,002,697 tons. When it is further understood that the vessels traversing these island seas are, many of them, of dimensions and cargo capacity such as we are accustomed to associate with ocean traffic and all that is implied in the building of such vessels, their equipment and operation is considered, the importance of the commerce of Lake Superior begins to be realized.

The following facts are notable :—

No tolls are charged for passage through either the American or the Canadian canals.

The season of navigation lasted for 7 months and 27 days, the United States canal being open from May 5 to December 13, or 223 days, and the Canadian canal from April 30 to December 26, 241 days.

The depth of water permitted a safe draft of from 17½ feet to 19½ feet.

The total freight passed through the two canals during the season aggregated 31,546,106 net tons (2,000 lbs.) a decrease compared with the preceding year of 3,128,331 tons, or 9 per cent. This decrease is ascribed, mainly, to a strike of the 'Masters and Pilots Association,' which lasted from the opening of navigation to June 13. 37,695 passengers were carried, being a decrease of 17,480, or 32 per cent. The traffic on the United States canal was 84 per cent of the total freight, or 26,517,916 tons, a decrease of 9 per cent, or 2,654,336 tons; and 57 per cent of the passengers, or 21,606, a decrease of 7 per cent, or 1,550. On the Canadian canal, the freight carried was 16 per cent of the total, or 5,028,190 tons; a decrease of 9 per cent, or 473,995 tons, and 43 per cent of the total passengers, or 16,089, a decrease of 50 per cent, or 15,930.

The total value of the freight was $334,502,686, an average value of $10.60 per ton. The amount paid for freight transportation was $21,552,894.30. The average distance freight was carried was 843·5 miles, and the total of mile—tons was 26,608,815,636.

The total number of registered vessels using the canals was 886, and there were, in addition, 513 passages by unregistered craft conveying freight. The total value of the registered vessels is placed at $69,166,400. United States vessels carried 94 per cent of the total freight, and Canadian vessels 6 per cent.

The number of registered vessels was 886; of which 787 were American, valued at $63,789,300, aggregating 1,172,500 tons, registered, and 99 Canadian, valued at $5,377,000, with 68,118 tons registered tonnage. Of these, 568 were American steamers, valued at $56,622,700 and with 921,585 tons registered tonnage, and 89 Canadian steamers, valued at $4,976,700, with 57,666 tons registered tonnage, and 224 sailing vessels, their value being $7,660,600, and tonnage 250,915 tons: Canadian sailing vessels numbered 10, aggregating 10,452 tons registered, and their value being $400,400. Unregistered craft made 513 passages, carrying 56,609 tons of freight. 299 passages were made by American vessels carrying 7,949 tons of freight, or an average of about 26½ tons per passage, and 214 passages by Canadian vessels, carrying 48,660 tons, or an average of about 227⅓ tons per passage.

Out of the 16,120 passages of the season, 2,626 were made by 100 vessels under 100 tons register; their average register tonnage being 31 tons.

The number of vessels in commission was, again, smaller than in the previous year; being 886, as against 895 in 1903, and 935 in 1902.

The tendency to increase the size and carrying capacity of vessels, and to abandon the use of the smaller vessel continues. In 1894 there were no boats carrying more than 4,000 tons, and only 18 carrying between 3,000 and 4,000 tons; at the same time there were 192 vessels carrying from 2,000 to 3,000 tons. Now, in 1904, ten years later, there were 93 of from 2,000 to 3,000 tons capacity; 154 between 3,000 and 4,000 tons; 37 between 4,000 and 5,000 tons; 30 between 5,000 and 6,000 tons; 64 of from 6,000 to 7,000 tons; 59 of from 7,000 to 8,000 tons; 36 of from 8,000 to 9,000 tons; 3 of from 9,000 to 10,000 tons, and 1 of over 11,000 tons; the last

The quantity of grain carried to tide water on the New York state canals was 226,867 tons, a decrease of 100,973 tons, while the quantity carried by the railways of the state to tide water amounted to 3,048,573 tons, a decrease of 745,400.

Of the total east and west bound freight carried by the state of New York railways (the Erie, the Champlain, the Black river, the Cayuga and Seneca, and the Oswego), and the competing railways (the New York Central and the Erie Railway) respectively (amounting in 1904 to 68,510,495 tons—less by 3,773,013 tons than in 1903), the proportion carried by the canals has fallen steadily from 68·9 per cent in 1859 and 47·0 per cent in 1869, to 6·8 per cent in 1898, 7·2 in 1899, 5·2 in 1900, 5·1 in 1901, 5·5 in 1902, 5·6 in 1903, and 4·6 in 1904. These canals carried in 1904, 3,138,547 tons, a decrease of 476,838 tons.

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four were put in commission in 1904. As to the dimensions of these vessels, the fleet of 1904 comprised 182 vessels between 300 and 400 feet in length, and of from 38 to 50 feet beam, 118 vessels from 400 to 500 feet long, and with 45 to 50 feet beam and one vessel 560 feet long, with 56 feet beam. In 1903 the largest single cargo was 11,536 tons, carried by the steamer 'Augustus B. Wolvin,' whose season's work aggregated 177,729 tons carried, and a total of 156,410,487 mile-tons.

There were 16,120 passages of vessels through the canals, 2,476 less than in the preceding year, 12,153 being through the American and 3,967 through the Canadian; they were covered by 10,315 lockages, 1,327 less than in 1903, of which 7,293 were through the American and 3,022 through the Canadian lock.

The principal items of freight, compared with the previous year, were as follows:—coal, 991,228 tons, a decrease of 157,777 tons of hard and 324,987 tons soft coal; flour, 5,463,641 barrels, a decrease of 2,382,842 barrels; wheat, 49,928,869 bushels, a decrease of 11,455,683 bushels; grain other than wheat 33,030,992 bushels, an increase of 935,346 bushels (this quantity comprised 11,006,881 bushels of oats, 7,754,739 bushels of barley and 13,353,617 bushels of flax; there was no corn carried); manufactured and pig iron 33,030,992 tons, an increase of 36,718 tons; salt, 365,459 barrels, a decrease of 89,423 barrels; copper, 109,695 tons, a decrease of 3,272 tons; iron ore, 19,635,797 tons, a decrease of 2,019,101 tons; lumber, 923,280 M. ft. B.M., a decrease of 79,912; silver ore, 1,359 tons, against none carried in the three previous years, except one ton in 1902; building stone, 27,093 tons, an increase of 5,793 tons; general merchandise, 732,009 tons, an increase of 72,170 tons.

30·33 per cent of the total freight was cereals, 21·30 per cent was iron (ore, pig and manufactured) copper constituted 7·86 per cent and lumber 4·90 per cent.

The east-bound traffic from Lake Superior aggregated 24,213,902 tons, the bulk being raw material in cereals and minerals and lumber, of which quantity 2,509,407 tons went to Lake Michigan ports, 2,502,312 tons in American vessels from American to American ports, and 7,095 tons from Canadian to American ports in American vessels; Canadian vessels carried no freight to Lake Michigan. Lake Huron ports received 1,044,507 tons; American vessels carrying 125,788 tons from American to American ports, 34,647 tons from American to Canadian ports, and 12,500 tons from Canadian to American ports; Canadian vessels carried 844,644 tons from Canadian to Canadian ports, 5,460 tons from Cnadian to American, and 21,468 tons from American to Canadian. To Lake Erie ports 20,378,262 tons were carried, of which American vessels carried 20,122,105 tons from American to American ports, 11,542 tons from American to Canadian and 99,997 tons from Canadian to American ports. Canadian vessels carrying 1,039 tons from Canadian to Canadian ports, and 143,579 tons from Canadian to American; they carried no freight from American ports on Lake Erie. To Lake Ontario 281,726 tons were taken, of which American vessels carried 41,242 tons from American to American ports, 32,354 tons from American to Canadian. Canadian vessels carrying 190,396 tons from Canadian to Canadian ports and 17,734 tons from American to Canadian.

The west-bound traffic to Lake Superior aggregated 7,332,204 tons, of which Canadian vessels carried 204,490 tons from Lake Huron Canadian ports to Canadian ports, and 12,451 tons to American ports, 421,668 tons from American ports in Lake Erie to Canadian ports, 60,420 tons from Canadian ports in Lake Ontario to Canadian ports, and 1,120 tons from Canadian to American ports. The largest west-bound traffic was from Lake Erie, 6,064,670 tons, carried from American to American ports in American vessels.

The freight charges per unit on the principal items were as follows:—on coal, $0.40 per ton; $0.13 per barrel; wheat and other grain, $0.018 per bushel; manufactured iron, $2.00 per ton; pig iron, $1.50 per ton; salt, $0.15 per barrel; copper, $1.43 per ton; iron ore, $0.63 per ton; lumber, $2.55 per M. ft. B.M.; silver ore, $2.00 per ton; building stone, $1.50 per ton; unclassified freight, $2.00 per ton.

The freight charge per ton per mile averaged 81 hundredths of a cent, the average charge per ton being 68 cents.

It has to be noted that there is a small discrepancy between the above statements and those of the Canadian officials, whose returns show a total of 5,030,705 tons of freight passed through the Canadian canal (instead of 5,028,190 tons) making the total freight passed through both canals 31,548,621 tons (instead of 31,546,106 tons).

The enlarged Erie canal, between Buffalo and Albany, is 350½ miles long; comprises 72 locks, 110 x 18 feet, with a depth of 7 feet of water, accommodating, as a maximum, vessels of 240 tons burden. The original canal was completed in 1836, and the enlargement in 1862. The total cost of construction was $51,609,200.

By means of the enlarged Canadian canal system and the intermediate waterways a minimum depth of fourteen feet of water from Lake Superior to the head of ocean navigation at Montreal is afforded; the smallest locks being 270 feet in length and 45 feet in width, intended, for the purposes of ordinary traffic, to accommodate vessels 255 feet long and 44 feet beam.* As an index to the carrying power of the canal works, a vessel of 247 feet length and width 42·6 feet, drawing 14 feet of water and carrying 2,212 tons of corn may be regarded as typical of their general accommodation, though not of their full capacity.

The through route between Montreal and Port Arthur, on the west shore of Lake Superior, open as a 14-foot navigation, comprises 73 miles of canal, with 48 locks, and 1,150 miles of river and lake waters, or a total of 1,223 miles. From Montreal to Duluth, at the south-west of Lake Superior, the total distance is 1,357 miles, and to Chicago, 1,286 miles. A summary of this route will be found in the Chief Engineer's report, Part II., and further details of the several works in the pages immediately following. At Port Arthur and at Fort William (about six miles distant), the Canadian Pacific Railway gives communication westwards and eastwards, and the Canadian Northern Railway westwards and with the south.

The approaches to the canals and the channels through the intermediate river reaches are well defined, and are lighted with gas buoys under the control of the Department of Marine and Fisheries, admitting of safe navigation, if in the hands of competent pilots, both day and night. In the cases of the Sault Ste. Marie, the Cornwall, and the Soulanges, they are well lighted throughout by electricity, and the Lachine is partially so lighted. The Sault Ste. Marie, the Cornwall and the Soulanges canals are electrically operated. Installments for electrical lighting and operation of the Welland canal are in progress; also, for like purposes on the Lachine. The Farran's Point canal is lighted with acetylene gas.

The extensive improvement works being carried on at Port Colborne, the Lake Erie entrance of the Welland canal, comprise the deepening of the approach to the canal to 22 feet, and the construction of two docks, with piers, 200 feet wide, upon which grain elevators will be erected for the transference of grain to vessels adapted to the canal navigation, when required.

The contract for the foundations of an elevator of 2,000,000 bushels capacity has been let. The plans for construction and equipment are in charge of a special expert in this difficult class of work. The work of excavation and filling is well advanced and a number of concrete foundation piers for the elevator have been built; work of rebuilding the west piers is in progress. In addition to the works undertaken

* In exceptional cases, and in cases of emergency, this length can, with certain manœuvring, be somewhat increased; being governed, of course, by the form of the vessel. As a matter of fact, there are vessels now using the canals whose length, over all, is 265 feet, and width of beam 37 feet.

by this department, a breakwater, about a mile in length, has been, and another is being constructed across the entrance to the harbour by the Department of Public Works, which will also dredge out the area so contained; thus greatly increasing the accommodation, and insuring safety at this important point. The removal of the centre pier bridges on the canal, which obstructed navigation, is in progress, and new bridges spanning the entire channel are being erected, four such bridges were built during the year. The deepening of portions of the canal prism is almost completed, and the installation of an electrical system of lighting and lock operation is progressing.

The work of deepening the approaches of the Sault Ste. Marie canal to 21 feet 5 inches below extreme low water mark is progressing: when finished, a channel way 500 feet wide at the upper entrance and 315 feet wide at the lower entrance will be available. The approaches at the lower entrance are completed to that depth. The south lower entrance pier is being extended for a distance of 800 feet, and the work was nearing completion at the close of the fiscal year. A contract has been made for the work for a similar extension of 800 feet to the south upper entrance pier, on which good progress has been made. With the completion of these two works, and possibly some levelling, sodding and tree and shrub planting of the canal grounds, in order to obtain an appearance of neatness such as that which characterizes the American canal opposite, the construction work of this canal will be finished.

On the Trent canal, the section, 9½ miles, comprising the new hydraulic lift lock at Ashburnham (Peterborough), was formally opened for traffic in June, 1904. A second hydraulic lift lock to overcome a rise and fall of fifty-four feet is under construction for the Balsam-Simcoe lake division of the canal, sections 2 and 3 of which are nearly completed.

When the present contracts are completed, a six foot navigation will be afforded from Lake Simcoe to Heely's falls, a distance of about 160 miles, leaving the portion between Heely's falls and Lake Ontario and the portion from the head of Lake Simcoe to Georgian bay, Lake Huron, still to be dealt with. The total distance between the Bay of Quinté, Lake Ontario and Georgian Bay is about 192 miles.

The transfer from the Provincial to the Dominion government of the several works comprised in the back lakes forming the head waters of the canal system is contemplated, as constituting an important feature in the maintenance of the water supply to the canal.

During the year comprehensive surveys were continued with a view to determining the most desirable route for those portions of the projected work that still remain to be constructed in order to give communication between Lake Ontario and Georgian bay. The report of the engineer in charge will be found in the appendices. They cover the northerly district between Lake Couchiching and Georgian bay, also the district to the south, between Rice lake and Lake Ontario, having in view as the possible terminal point on the latter lake either Trenton, Cobourg or Port Hope, all three places having urged claims for that distinction. With the resulting information, when properly digested from the survey books, it will, it is hoped, be possible to arrive at a judicious conclusion as to the route it would be advisable, finally, to adopt.

Surveys were also made of the east and west branches of the Holland river, and of the Black river from Lake Simcoe to Sutton: with a view to the improvement of their navigation.

On the Williamsburg and Cornwall canals some minor work was carried on in connection with certain structures, and the widening of the canal prism.

The completion of the difficult work of forming a channel 3,000 feet long, 300 feet wide, and with 17 feet of water through the Galops rapids, which has, for some years past, been carried on, is approaching, at the close of the year, only a very small area remaining to be dredged. The width at one point has been restricted to 248 feet. In this connection there is being constructed a massive dam between Adam's island (Canadian) and Galops island, which is in the territory of the United States, in order to the removal of a cross current which affected the said new channel. By the close of the year the permanent superstructure of the dam had been completed, and the anticipated good effects upon the current in the channel have resulted from the work. In dealing with this matter, the department has received much courteous assistance from the United States authorities, who have facilitated the work in every way in their power.

On the Lachine canal one of the principal features was the installation of a new electrical system of operation at one of the lock gates as a test of its efficiency. The other canals in the province of Quebec do not require any special reference here. They have been maintained with due regard to their needs in the way of repair.

The same observation applies to the Rideau canal, no special feature of moment calling for mention in this place, beyond the fact that a new concrete dam was constructed at Poonamilie to replace the old one broken in the spring freshets of 1904.

In the report of the Chief Engineer, and in the reports of the superintending engineers, will be found full details as to the operation of the various canals, and as to the progress and position of the works of enlargement and construction now being carried on.

GENERAL OBSERVATIONS.

I desire, very emphatically, to urge that some provision be made for recognition of long and faithful service in the cases of men whose further employment on the government railways is, by reason of their age, or otherwise, considered undesirable. I would, in this connection, draw attention to the general practice of the leading railway companies, both in Canada and the United States, in dealing with such matters, and I am strongly of opinion that similar treatment of the employees on the government roads would not only be fair to the men, but also in the best interests of the railway, as affording practical proof that duty faithfully performed will bring generous appreciation on the part of those benefiting by it.

With reference to the statutory returns called for annually from railway companies, it is considered highly desirable that the information to be obtained should

be of a more comprehensive character than at present, and supply details similar to those furnished by United States railway companies to the Interstate Commission. Steps are contemplated to this end.

In conclusion, I desire to observe that consideration of the work of the department and of its staff, impresses me strongly with the necessity for reorganization, and a numerical increase of its officers. Notwithstanding the great and ever-extending addition to its work, as the natural and very satisfactory issue of the rapid growth of the country during the last quarter of a century, the fixed staff remains practically unchanged. Compared with any large railway company, business or legal house, the department is much undermanned, and its staff is out of all proportion to the work that has to be done. The consequence is that many matters are barred from the prompt treatment they should receive, despite the best efforts of the officials concerned. This condition of affairs to which, I note, my predecessor, in several previous reports, has drawn attention, should, in the public interests, be remedied without delay.

I have the honour to be, sir, your obedient servant,

M. J. BUTLER,
Deputy Minister of Railways and Canals.

PART I

STATEMENTS OF THE ACCOUNTANT

No. 1.

STATEMENT showing the amount expended by the Department of Railways and Canals, Dominion of Canada, during the Fiscal Year ended June 30, 1905.

Name of Works.	Chargeable to Capital.	Chargeable to Income.	CHARGEABLE TO REVENUE.	
			Staff.	Repairs.
CANALS.	$ cts.	$ cts.	$ cts.	$ cts.
Beauharnois		14,949 83	9,086 68	10,499 99
Carillon				
Grenville		8,715 46	15,858 19	19,977 19
Chambly		33,066 50	26,970 79	19,896 57
Cornwall	104,093 45	8,324 83	71,073 68	28,100 67
Culbute		2,255 00		
Lachine	112,460 47	144,996 37	86,209 93	65,202 42
Murray	100 00	740 45	5,346 62	4,452 68
Rideau	1,565 84	14,513 35	40,838 81	49,790 55
Sault Ste. Marie	110,181 69		15,681 55	14,776 33
Soulanges	34,202 71	30,406 25	25,432 49	21,174 84
Ste. Anne's			2,151 01	6,091 44
St. Lawrence. North Channel	93,025 89			
St. Lawrence. Galops Channel	49,734 70			
St. Lawrence. River Reaches	25,743 51			
St. Ours		14,900 90	2,479 66	1,716 35
St. Peter's		3,000 10	2,969 90	1,095 90
Trent	333,261 75	36,853 28	12,071 88	26,056 78
Welland	890,457 82	34,559 42	91,928 96	111,418 62
Williamsburg. Galops	292,337 29			
Williamsburg. Rapide Plat	8,109 98			
Williamsburg. Farran's Point	8,108 99	5,573 69	23,399 45	21,492 46
Williamsburg. General	8,209 63			
Total	2,071,593 72	352,855 43	431,499 60	401,742 79
GENERAL ON CANALS.				
Arbitrations and awards		90 95		
Dredge vessels—Lachine				3,999 15
" Rideau				8,016 82
Miscellaneous			1,159 69	174 33
Salaries and contingencies, canal officers			33,170 97	
Sunday labour			17,994 11	
Surveys and inspections		1,407 19		
Total		1,498 14	52,324 77	12,190 30
RAILWAYS.				
Canada Eastern	800,000 60			
Intercolonial	3,937,621 93		8,508,826 75	
National Transcontinental	778,491 28			
Prince Edward Island	591,412 65		370,464 44	
Windsor Branch			26,863 16	
Total	6,107,525 86		8,906,154 35	

STATEMENT showing the amount expended by the Department of Railways and Canals, &c.—*Concluded.*

Name of work.	Chargeable to Capital.	Chargeable to Income.	CHARGEABLE TO REVENUE.	
			Staff.	Repairs.
GENERAL ON RAILWAYS.	$ cts.	$ cts.	$ cts.	$ cts.
Railway statistics		1,220 83		
Railway subsidies		1,275,629 53		
Governor General's car	17,955 93	1,581 31		
Railway Commission		77,557 95		
Subscription to Railway Congress, Brussels		97 33		
Surveys and inspections		17,049 58		
Total	17,955 93	1,373,136 53		
MISCELLANEOUS.				
Cost of litigation		5,799 62		
Gratuity to widow late Thomas Ridout		466 66		
Salaries of engineers, draughtsmen, &c		28,139 44		
" extra clerks, &c		3,484 94		
Unforeseen expenses		769 86		
Total		38,660 52		
RECAPITULATION.				
Total on canals	2,071,593 72	352,855 43	431,499 60	401,742 79
" general		1,498 14	52,324 77	12,190 30
Total on canals	2,071,593 72	354,353 57	483,824 37	413,933 09
Grand total canals, $3,323,704.75				
Total on railways	6,107,525 86		8,906,154 35	
" general	17,955 93	1,373,136 53		
Total on Railways	6,125,481 79	1,373,136 53	8,906,154 35	
Grand total railways, $16,404,772.67				
Grand total railways and canals, including miscellaneous, $38,660.52	8,197,075 51	1,766,150 62	9,389,978 72	413,933 09

Total amount expended, $19,767,137.94.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

No. 2.

STATEMENT showing the amount expended on Construction, Renewals, Ordinary Repairs and Working Staff of the Canals of the Dominion of Canada, up to June 30, 1905.

ST. PETER'S CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	....	156,523 32	.....	.....	.....
" since " "	1868	21,519 72	.....	.....	.....
" " " "	1869	70,719 80	.....	.....	.....
" " " "	1870	.....	46,193 57	.....	.....
" " " "	1871	.....	.....	225 36	555 78
" " " "	1872	.....	.....	280 00	6,122 67
" " " "	1873	.....	.....	343 32	6,539 58
" " " "	1874	.....	.....	725 93	1,558 57
" " " "	1875	20 97	.....	560 00	889 35
" " " "	1876	11,125 00	.....	641 55	.....
" " " "	1877	63,330 18	.....	600 00	17 45
" " " "	1878	26,511 51	.....	600 00	.....
" " " "	1879	107,337 75	.....	631 50	.....
" " " "	1880	80,120 54	.....	400 00	.....
" " " "	1881	69,434 76	.....	959 58	.....
" " " "	1882	484 00	.....	1,920 54	200 63
" " " "	1883	.....	.....	2,089 19	232 42
" " " "	1884	2,471 40	.....	2,601 47	367 85
" " " "	1885	16,820 15	.....	1,929 11	183 11
" " " "	1886	2,316 85	.....	2,360 67	297 81
" " " "	1887	1,087 75	750 00	2,777 13	343 23
" " " "	1888	.....	.....	3,217 77	1,588 40
" " " "	1889	.....	500 00	3,085 29	353 38
" " " "	1890	.....	.....	3,110 15	255 34
" " " "	1891	972 65	510 53	3,255 30	312 02
" " " "	1892	14,387 00	36,936 82	3,007 70	1,461 24
" " " "	1893	811 59	9,987 78	2,938 15	1,856 30
" " " "	1894	437 05	3,852 21	2,935 94	1,986 70
" " " "	1895	868 44	26,222 46	2,499 81	353 55
" " " "	1896	1,455 21	16,743 64	2,182 04	260 90
" " " "	1897	.....	.....	2,728 38	1 20
" " " "	1898	.....	111 70	2,785 25	453 85
" " " "	1899	.....	.....	2,819 86	456 61
" " " "	1900	.....	.....	2,833 24	1,483 30
" " " "	1901	.....	2,311 26	2,730 44	841 63
" " " "	1902	.....	10,014 43	2,939 81	274 44
" " " "	1903	.....	.....	2,836 49	764 11
" " " "	1904	.....	.....	3,126 94	122 45
" " " "	1905	.....	3,000 10	2,969 90	1,095 90
		648,755 64			
Less—Refunds of previous years.....	....	208 50			
Total	....	*648,547 14	151,134 50	71,647 81	31,229 17

* Expenditure as above ..... $ 648,547 14
Less expenditure prior to Confederation..... 156,523 32

Agreeing with Public Accounts, 1905, page 4..... $ 492,023 82

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

BAIE VERTE CANAL.

	Year ending June 30.	Capital.	Income.
		$ cts.	$ cts.
Government expenditure prior to Confederation			
Since "	1868		
" "	1869		
" "	1870		
" "	1871		17,929 34
" "	1872		6,399 41
" "	1873		14,943 83
" "	1874		4,018 90
" "	1875		443 00
" "	1876		110 75
" "	1877		22 30
" "	1878		
" "	1879		
" "	1880		
" "	1881		520 00
" "	1882		
" "	1883		
" "	1884		
" "	1885		
" "	1886		
" "	1887		
" "	1888		
" "	1889		
" "	1890		
" "	1891		
" "	1892		
" "	1893		
" "	1894		
" "	1895		
" "	1896		
" "	1897		
" "	1898		
" "	1899		
" "	1900		
" "	1901		
" "	1902		
" "	1903		
" "	1904		
" "	1905		
Total			44,387 53

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LACHINE CANAL.

——	Year ending June 30.	Chargeable to Capital.		Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Expenditure by Imperial Government	....	40,000 00				
Government expenditure prior to Confederation	....	2,547,532 85				
Government expenditure since Confederation	1868			1,852 70	13,742 05	10,431 51
" "	1869	2,000 00			14,209 02	12,085 84
Cost of original construction and enlargement of 1845 to 1848			2,589,532 85			
Expenditure by Dominion Government	1870				15,834 49	13,302 39
"	1871			12,231 40	17,478 52	15,093 25
"	1872	36,708 15			16,076 93	12,334 69
"	1873	7,824 28		35,158 21	23,601 03	34,300 60
"	1874	158,618 35			25,811 07	22,828 66
"	1875	197,420 52			28,592 01	30,057 34
"	1876	327,769 39			33,797 73	29,103 65
"	1877	1,439,375 73			33,148 86	19,824 33
"	1878	1,484,619 63			39,062 97	13,646 41
"	1879	958,053 30			42,338 84	12,400 78
"	1880	369,566 74			38,950 90	10,223 62
"	1881	292,165 51			39,027 99	19,888 33
"	1882	252,821 33		2,978 66	41,158 90	17,116 46
"	1883	396,496 96		1,859 68	45,554 91	18,199 59
"	1884	188,266 18			48,624 51	19,683 24
"	1885	111,215 23			49,004 85	20,199 78
"	1886	210,509 42			50,969 10	19,199 18
"	1887	28,772 52		12,981 59	53,113 97	22,567 81
"	1888	19,414 34		7,996 38	52,229 61	19,999 64
"	1889	76,032 96		972 71	54,110 67	22,957 71
"	1890	7,448 03		8,238 46	53,114 34	22,999 38
"	1891	217 53		16,155 75	50,721 69	36,292 98
"	1892	87,852 35		27,480 80	52,729 37	67,499 62
"	1893	445,983 21		50,937 40	53,185 00	51,616 79
"	1894	64,345 14		17,152 48	60,174 03	40,939 70
"	1895	189,944 36		32,405 20	56,337 44	25,891 45
"	1896	184,998 25		8,193 15	58,342 96	24,950 20
"	1897	282,052 48		14,664 21	57,533 20	25,820 73
"	1898	216,717 44		819 62	57,282 50	33,391 92
"	1899	162.351 83		3,103 99	55,990 00	35,776 90
"	1900	125,009 41		12,210 88	56,791 45	31,988 81
"	1901	97,305 52		12,072 87	58,364 29	50,005 48
"	1902	113,328 26		36,249 02	59,435 33	45,853 97
"	1903	58,426 92		109,893 43	69,762 03	53,054 20
"	1904	181,487 06		162,705 14	77,233 17	50,660 92
"	1905	112,460 47		144,996 37	86,209 93	65,202 42
Cost of enlargement			8,885,578 80			
Total			11,475,111 65	733,310 10	1,739,645 66	1,077,390 28

Total expenditure on capital account as above $11,475,111 65
Less charged to St. Lawrence River Canals, see page 9 ..... $2,950,104 15
Less expenditure by Imperial Government 40,000 00
2,990,104 15

Agreeing with Public Accounts balance sheet, 1905, page 4 ..... $ 8,485,007 50

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

BEAUHARNOIS CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		1,611,424 11			
" since " "	1868		63,193 75	9,349 99	6,216 98
" " " "	1869		55 00	9,626 99	6,498 57
" " " "	1870		27 50	10,117 57	6,384 81
" " " "	1871			12,316 53	5,722 36
" " " "	1872		27 50	11,792 46	15,733 38
" " " "	1873		5,122 50	12,210 73	9,882 06
" " " "	1874		26 00	15,392 51	10,990 56
" " " "	1875		36 00	14,399 32	12,253 01
" " " "	1876			14,465 86	17,170 83
" " " "	1877			14,377 63	15,207 36
" " " "	1878			14,383 37	9,861 05
" " " "	1879			15,015 86	10,370 71
" " " "	1880	266 15		15,362 61	8,997 34
" " " "	1881			17,659 93	10,770 67
" " " "	1882			18,804 53	20,813 86
" " " "	1883		6,727 44	18,287 77	15,826 71
" " " "	1884		3,277 98	19,107 38	16,232 61
" " " "	1885		7,999 79	18,960 40	14,637 70
" " " "	1886		8,491 80	19,228 90	14,356 00
" " " "	1887		3,633 57	18,867 45	14,999 88
" " " "	1888		14,411 97	19,325 05	14,285 98
" " " "	1889		10,993 52	20,019 11	14,982 54
" " " "	1890			19,847 42	14,999 20
" " " "	1891		17,085 68	18,886 86	12,537 39
" " " "	1892		1,696 23	20,050 01	14,999 80
" " " "	1893			20,348 34	14,107 11
" " " "	1894		6,547 72	20,574 53	13,903 46
" " " "	1895		27,982 93	20,428 59	12,299 49
" " " "	1896			20,725 47	15,050 85
" " " "	1897		9,813 15	21,012 64	14,862 98
" " " "	1898	25,000 00	5,799 34	20,650 00	16,164 92
" " " "	1899		1,000 00	20,613 22	13,463 01
" " " "	1900		4,959 22	20,147 59	14,505 30
" " " "	1901		483 40	20,118 42	14,199 12
" " " "	1902			16,682 52	6,532 33
" " " "	1903			8,218 14	10,063 38
" " " "	1904			9,236 27	11,936 37
" " " "	1905		14,949 83	9,086 68	10,499 99
Total		*1,636,690 26	214,341 82	625,698 65	482,319 67

*See page 9 for total cost of St. Lawrence River and Canals

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c. —*Continued.*

ST. LAWRENCE RIVER AND CANALS, SURVEYS, &c.

	Year ending June 30.	Chargeable to Capital. North Channel.	River Reaches.	Galops Channel.	Total.	Chargeable to Income.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation					18,442 85	98,378 46
Government expenditure since Confederation	1868					
" "	1869					
" "	1870					
" "	1871					
" "	1872					
" "	1873				33,241 69	
" "	1874				26,541 30	
" "	1875				20,611 36	
" "	1876				50,215 47	
" "	1877				47,377 31	
" "	1878				5,570 46	
" "	1879				9,265 77	
" "	1880				9,214 56	
" "	1881				6,927 96	
" "	1882		6,933 45	22,000 00	28,933 45	
" "	1883		3,574 31	41,300 00	44,874 31	
" "	1884		15,546 03	74,300 00	89,846 03	
" "	1885		13,710 17	101,400 00	115,110 17	
" "	1886		16,251 73	99,800 00	116,051 73	
" "	1887		20,037 31	54,400 00	74,437 31	
" "	1888		16,082 85	40,400 00	56,482 85	
" "	1889		1,293 92	17,200 00	18,493 92	
" "	1890		18,279 91	5,700 00	23,979 91	
" "	1891		35,137 25		35,137 25	
" "	1892		59,779 31		59,779 31	
" "	1893		52,643 39		52,643 39	
" "	1894		13,721 66		13,721 66	
" "	1895		1,223 72	181,552 03	182,775 75	
" "	1896		7,457 05		7,457 05	
" "	1897		12,347 31		12,347 31	
" "	1898	171,336 65	7,491 11	32,710 00	211,537 76	
" "	1899	461,979 50	9,366 47	42,430 00	513,775 97	
" "	1900	225,000 00	72,484 41	50,000 00	347,484 41	
" "	1901	184,790 34	19,389 75	91,211 97	295,392 06	
" "	1902	125,000 00	29,268 64	24,037 85	178,306 49	
" "	1903	126,833 94	16,432 28	25,000 00	168,266 22	
" "	1904	68,595 42	9,634 66	6,450 00	84,680 08	
" "	1905	93,025 89	25,743 51	49,734 70	168,504 10	
		1,456,561 74	483,830 20	959,626 55	3,127,427 22	98,378 46

ST. LAWRENCE RIVER AND CANALS.

St. Lawrence River and Canals, as above		$ 3,127,427 22
Beauharnois Canal, see page 8		1,636,690 26
Cornwall Canal " 12		7,181,187 58
Williamsburg Canal " 14		10,185,853 21
Lake St. Louis " 10		298,176 11
Soulanges Canal " 26		6,886,174 48
Lachine Canal, from prior to Confederation to June 30, 1875, see page 7		2,950,104 15
Lake St. Francis, see page 11		75,906 71
Agreeing with Public Accounts Balance Sheet, 1905, page 4		$32,341,519 72

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LAKE ST. LOUIS.

—	Year ending June 30.	Chargeable to Capital.	Chargeable to Revenue.
		$ cts.	$ cts.
Government expenditure prior to Confederation ..			
" since "	1868		
" " " "	1869		
" " " "	1870		
" " " "	1871		
" " " "	1872		
" " " "	1873		
" " " "	1874		
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" " " "	1891		
" " " "	1892		
" " " "	1893		
" " " "	1894		
" " " "	1895	4,753 14	
" " " "	1896	49,909 31	
" " " "	1897	73,300 41	
" " " "	1898	64,495 83	
" " " "	1899	57,607 79	
" " " "	1900	11,765 70	
" " " "	1901	12,918 31	
" " " "	1902	6,000 00	
" " " "	1903	9,508 72	
" " " "	1904	7,916 90	
" " " "	1905	†	
Total.		*298,176 11	

* Included in in total cost of St. Lawrence River and Canals, see page 9.
† Transferred to Department of Marine and Fisheries.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LAKE ST. FRANCIS.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.
		$ cts.	$ cts.
Government expenditure since Confederation	1868		
" " " "	1869		
" " " "	1870		
" " " "	1871		
" " " "	1872		
" " " "	1873		
" " " "	1874		
" " " "	1875		
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" " " "	1894		
" " " "	1895		
" " " "	1896		
" " " "	1897		
" " " "	1898	3,420 00	
" " " "	1899	23,110 00	
" " " "	1900	15,431 46	12,288 39
" " " "	1901	15,000 00	8,060 30
" " " "	1902	13,945 25	
" " " "	1903	5,000 00	
" " " "	1904		2,199 52
" " " "	1905	†	
Total		*75,906 71	22,548 21

*Included in total cost of St. Lawrence River and Canals, see page 9.
†Transferred to Department of Marine and Fisheries.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAY AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c. —*Continued.*

CORNWALL CANAL.

—	Year ending June 30.	Chargeable to Capital.		Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		1,933,152 69				
Government expenditure since Confederation	1868			2,786 00	11,244 47	3,774 18
" "	1869	10,692 04			10,347 91	3,859 14
" "	1870			17,780 05	10,368 16	7,145 42
" "	1871			7 50	11,848 39	8,891 61
" "	1872			10,000 21	10,594 30	8,163 70
" "	1873			1,011 75	13,042 25	12,467 65
" "	1874				13,405 20	7,610 70
" "	1875	1,780 00			13,351 91	7,097 34
Cost of original construction			1,945,624 73			
Expenditure by Dominion Government	1876				13,320 61	6,423 67
" "	1877	49,211 37			13,375 70	6,440 54
" "	1878	145,015 45			13,825 50	4,935 21
" "	1879	143,092 05			13,817 96	4,983 15
" "	1880	109,454 95			14,440 33	9,735 76
" "	1881	53,948 14			15,173 60	5,524 10
" "	1882	44,587 61			15,052 20	6,634 62
" "	1883	21,728 93			18,283 67	8,361 71
" "	1884	22,018 13			18,475 48	9,007 73
" "	1885	62,034 90		16,298 96	15,988 96	12,368 51
" "	1886	57,820 83		6,960 95	15,994 80	11,832 83
" "	1887	46,966 43			17,520 54	12,100 29
" "	1888	67,945 74			16,938 54	13,942 64
" "	1889	163,993 85			17,890 55	58,205 26
" "	1890	365,038 01		2,000 00	17,063 49	12,758 18
" "	1891	599,001 85		1,459 98	16,077 72	9,830 05
" "	1892	398,555 25		2,345 26	15,596 66	9,864 36
" "	1893	352,536 13			15,173 01	9,668 14
" "	1894	404,990 22			15,344 02	7,733 54
" "	1895	450,689 65		21,497 74	15,414 56	13,053 55
" "	1896	448,408 31		2,175 00	15,472 26	25,259 56
" "	1897	438,487 51			15,540 43	16,438 32
" "	1898	133,208 96			15,011 50	15,431 02
" "	1899	37,649 00		15,960 80	16,000 00	14,623 90
" "	1900	169,889 51		18,547 50	18,798 10	13,998 29
" "	1901	62,032 47			17,104 13	13,166 89
" "	1902	90,535 18			17,896 58	15,045 95
" "	1903	77,833 81			70,129 29	19,205 66
" "	1904	113,795 16		1,730 16	45,792 64	20,932 55
" "	1905	104,093 45		8,324 83	71,073 68	28,100 67
Cost of enlargement			5,235,562 85			
Total			*7,181,187 58	128,886 69	711,789 10	474,616 39

* Included in total cost of St. Lawrence River and Canals, see page 9.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c. — *Continued.*

WILLIAMSBURG CANALS.

	Year ending June 30.	Capital.				Renewals Chargeable to Income.	Staff.	Repairs.
		Farran's Point.	Galops.	Rapide Plat.	Total.			
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation being amount of original construction					1,320,655 54			
Government expenditure since Confederation	1868						5,745 97	6,442 41
" " "	1869						5,769 81	5,670 88
" " "	1870						5,573 13	6,546 16
" " "	1871						6,382 17	5,308 41
" " "	1872					1,077 00	5,542 94	3,230 07
" " "	1873						6,424 49	7,547 75
" " "	1874						6,857 19	7,395 92
" " "	1875						6,547 62	4,110 29
" " "	1876						7,418 39	11,690 98
" " "	1877						7,388 08	10,053 61
" " "	1878						7,430 11	4,449 78
" " "	1879						7,517 20	3,549 71
" " "	1880						7,590 15	3,999 77
" " "	1881						7,572 35	5,020 73
" " "	1882						7,589 44	7,447 69
" " "	1883				13 19		7,423 48	7,299 39
" " "	1884				2,473 44		7,757 04	7,349 37
" " "	1885		70,764 07	32,473 05	103,237 12		7,696 67	8,198 03
" " "	1886		78,014 92	71,820 79	149,835 71		7,671 54	7,847 05
" " "	1887		32,862 02	82,990 98	115,853 00		7,635 54	7,904 76
" " "	1888		16,628 95	53,499 34	70,128 29	1,613 67	7,646 79	8,190 13
" " "	1889		37,661 15	22,206 11	59,867 26		7,485 28	8,794 61
" " "	1890		126,417 42	12,660 95	139,078 37		8,954 53	8,191 69
" " "	1891	2,853 76	172,779 88	55,036 96	230,670 60		8,678 25	7,987 40
" " "	1892		218,511 17	158,034 15	376,545 32	797 83	9,458 33	8,551 32
" " "	1893		154,524 01	217,669 28	372,193 29	3,675 00	8,676 03	8,347 97
" " "	1894		223,992 81	274,397 42	498,390 23		10,230 09	7,029 95
" " "	1895		118,464 53	228,892 70	347,357 23	13,720 36	9,675 09	7,371 37
Carried forward		2,853 76	1,250,620 93	1,209,681 73	3,786,298 59	20,883 86	210,337 70	195,327 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

WILLIAMSBURG CANALS—*Continued.*

	Year ending June 30.	Capital.				Renewals Chargeable to Income.	Staff.	Repairs.
		Farran's Point.	Galops.	Rapide Plat.	Total.			
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Brought forward		2,853 76	1,250,620 93	1,209,681 73	3,786,298 59	20,883 86	210,337 70	195,327 20
Government expenditure since Confederation	1896	4,980 00	150,744 16	286,396 96	442,121 12	8,607 04	9,588 51	9,036 00
" " "	1897		262,795 78	205,480 55	468,274 33	3,880 76	8,697 54	8,210 71
" " "	1898	231,321 44	734,492 07	116,072 55	1,081,886 06		10,708 66	8,032 84
" " "	1899	346,956 54	987,186 44	57,869 18	1,392,012 16	7,410 00	9,960 64	10,000 00
" " "	1900	100,534 64	752,799 27	14,298 74	867,632 65	4,137 04	11,092 06	10,897 79
" " "	1901	111,158 39	390,112 78	76,501 57	577,772 74		12,342 32	11,755 09
" " "	1902	42,209 89	421,945 81	137,818 22	601,973 92		14,403 28	13,673 26
" " "	1903	10,266 92	320,354 92	18,483 34	349,105 18		15,246 91	20,092 79
" " "	1904	18,700 00	256,536 30	26,774 27	302,010 57	1,978 85	20,570 17	19,430 05
" " "	1905	8,108 99	292,337 29	8,109 98	8,209 63 308,556 26	5,573 69	23,399 45	21,492 46
Total		877,090 57	5,819,923 75	2,157,487 09	*10,185,853 21	52,471 24	346,347 24	327,948 19

Original construction	$ 1,320,655 54
Cost of enlargement	8,865,197 67
Total	$10,185,853 21

Included in total cost of St. Lawrence River and Canals, page 9.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

WELLAND CANAL.

—	Year ending June, 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Imperial Government		222,220 00			
Government expenditure prior to Confederation		7,416,019 83			
" since " "	1868	12,097 84		37,679 05	38,852 96
" " " "	1869	43,486 36		39,060 61	50,773 03
" " " "	1870		22,173 72	40,340 45	65,009 19
" " " "	1871		48,569 10	42,383 33	53,381 02
" " " "	1872	53,680 32	6,022 44	37,085 37	50,276 90
" " " "	1873	82,282 20	47,876 27	45,382 99	66,550 73
" " " "	1874	746,420 61		50,966 48	103,666 99
" " " "	1875	1,047,119 91		52,595 00	88,539 99
" " " "	1876	1,569,478 19	700 00	57,623 31	81,376 12
" " " "	1877	2,199,962 61		59,963 47	49,783 93
" " " "	1878	2,138,392 99		60,138 59	66,393 53
" " " "	1879	1,552,697 41		59,942 23	56,755 57
" " " "	1880	1,252,924 75		63,198 10	76,535 25
" " " "	1881	1,242,943 37	6,593 19	56,398 04	69,249 53
" " " "	1882	603,402 17	13,664 80	74,641 51	84,374 97
" " " "	1883	549,433 29	5,979 03	109,207 21	72,707 62
" " "	1884	432,336 21		113,276 87	90,926 97
" " " "	1885	463,505 38	6,150 21	112,670 00	91,534 66
" " " "	1886	215,380 75	1,359 00	111,660 22	69,507 48
" " " "	1887	1,071,073 87	3,828 67	109,371 69	77,440 80
" " " "	1888	429,720 94	10,740 86	110,806 01	86,518 97
" " " "	1889	225,910 21	43,803 80	113,587 05	77,547 77
" " "	1890	117,633 22	51,648 28	109,202 02	72,686 19
" " " "	1891	36,371 03	19,767 73	107,662 63	82,548 30
" " " "	1892	29,541 21	9,008 80	104,673 73	73,771 87
" " " "	1893	8,259 94	25,103 13	104,926 73	65,016 84
" " " "	1894	1,571 78	13,430 20	102,018 80	53,053 71
" " " "	1895	3,809 35	24,245 02	90,438 07	48,270 94
" " " "	1896	1,677 67	18,768 99	87,988 11	62,542 64
" " " "	1897	2,282 35	22,283 06	88,095 20	41,247 81
" " " "	1898		34,803 25	84,806 54	59,571 66
" " " "	1899		30,099 84	86,110 88	56,270 60
" " " "	1900	18,167 29	37,164 84	84,888 36	59,507 64
" " " "	1901	224,536 96	87,777 43	86,889 24	72,055 89
" " " "	1902	303,997 81	78,905 37	88,048 95	69,279 90
" " " "	1903	315,819 49	94,127 21	90,684 05	72,004 59
" " " "	1904	555,751 00	31,140 58	91,115 35	85,717 88
" " " "	1905	890,457 82	34,559 42	91,928 96	111,418 62
Total		* 26,080,366 13	830,294 24	3,057,455 20	2,652,669 06

* Total expenditure as above	$	26,080,366 13
Less expenditure by Imperial Government		222,220 00
Agreeing with Public Accounts Balance Sheet, 1905, page 4	$	25,858,146 13

Original cost of construction, including first enlargement	$	7,693,824 03
Enlargement, including new Welland Canal		17,386,542 10
Total expenditure as above	$	25,080,366 13

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

STE. ANNE'S LOCK AND CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Governm. expenditure prior to Confederation..		134,456 51			
" since " " ..	1868			778 16	432 47
" " " " ..	1869			1,062 96	1,873 51
" " " " ..	1870			1,136 54	1,280 36
" " " " ..	1871			1,285 84	1,539 02
" " " " ..	1872		1,939 46	1,106 80	1,393 63
" " " " ..	1873		540 11	2,199 64	1,264 40
" " " " ..	1874	12,753 27		2,614 90	7,208 63
" " " "	1875	32,627 71		1,859 20	4,506 68
" " " " ..	1876	24,935 85		1,952 14	4,033 72
" " " " ..	1877	30,003 08		1,982 65	1,756 93
" " " " .	1878	14,618 85		2,057 32	541 95
" " " " ..	1879	22,113 02		2,202 03	3,259 70
" " " " ..	1880	3,054 68		2,152 57	1,704 71
" " " " ..	1881	69,042 76		2,553 02	3,257 92
" " " " ..	1882	193,158 36		2,611 30	2,343 99
" " " " ..	1883	172,959 95		2,569 86	3,448 83
" " " " ..	1884	142,006 25		2,775 32	2,725 49
" " " " .	1885	93,679 57		2,618 60	4,042 04
" " " " ..	1886	129,681 67		2,611 90	5,803 01
" " " " .	1887	45,276 08	6,054 10	2,537 41	1,499 96
" " " " ..	1888	18,910 55	1,372 59	2,505 61	1,380 75
" " " " ..	1889	24,786 33		2,569 22	1,730 79
" " " " ..	1890	6,151 14		2,571 04	1,525 51
" " " " ..	1891		8,173 69	2,505 69	1,503 56
" " " " ..	1892		25,471 61	2,571 28	1,666 21
" " " " ..	1893		6,521 88	2,581 08	2,800 03
" " " " ..	1894		3,497 56	2,640 00	2,799 63
" " " " ..	1895		3,694 33	2,508 14	3,025 91
" " " " ..	1896			2,495 54	4,993 89
" " " " ..	1897			2,357 51	1,688 12
" " " " ..	1898			1,904 10	1,699 44
" " " " ..	1899			1,920 12	1,997 96
" " " " ..	1900			1,840 51	2,679 21
" " " " ..	1901			1,895 89	3,999 02
" " " " ..	1902			1,994 52	3,015 97
" " " " ..	1903		1,984 39	2,072 17	4,684 42
" " " " ..	1904			2,292 94	2,244 13
" " " " ..	1905			2,151 01	6,091 44
Total		*1,170,215 63	59,249 72	82,044 53	103,442 94

* Included in total cost of Ottawa River Works, see page 19.

Original construction	$ 134,456 51
Enlargement, including new lock	1,035,759 12
	$ 1,170,215 63

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

CARILLON AND GRENVILLE CANAL.

—	Year ending June 30.	Capital.	Renewals, Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Imperial Government		*			
Government expenditure prior to Confederation		63,053 64			
" since " "	1868		19,817 22	6,301 88	8,911 28
" " " "	1869			6,549 38	10,157 42
" " " "	1870		4,167 96	6,617 81	9,852 09
" " " "	1871		23,119 37	8,676 90	8,218 24
" " " "	1872	165,257 28		8,324 51	17,235 31
" " " "	1873	133,199 10	3,051 38	10,068 28	8,781 50
" " " "	1874	245,258 38		10,710 88	10,605 82
" " " "	1875	339,864 76		10,378 57	18,520 44
" " " "	1876	326,203 16		10,764 38	11,475 96
" " " "	1877	245,738 04		11,050 27	10,304 06
" " " "	1878	22,676 20		11,401 30	5,082 72
" " " "	1879	243,141 24		11,501 22	7,629 98
" " " "	1880	281,514 27		11,959 14	7,625 54
" " " "	1881	336,707 53		13,059 18	8,076 91
" " " "	1882	433,084 39		14,387 49	7,582 68
" " " "	1883	433,575 10		17,479 58	8,310 02
" " " "	1884	399,267 16		17,393 91	7,918 42
" " " "	1885	157,187 72		19,702 30	10,429 26
" " " "	1886	104,973 24	75 00	20,597 82	9,303 31
" " " "	1887	20,747 11		20,011 36	10,554 41
" " " "	1888	38,996 29		21,531 12	10,036 62
" " " "	1889	298 17		22,098 88	10,135 66
" " " "	1890	17 58	4,526 61	15,896 16	7,582 38
" " " "	1891		4,395 25	21,230 22	10,796 68
" " " "	1892	34,585 64	15,036 48	17,458 69	8,620 15
" " " "	1893	207 00	42,298 74	16,762 71	10,669 28
" " " "	1894	385 55	20,034 94	14,144 98	11,620 09
" " " "	1895		5,963 76	15,453 21	12,303 25
" " " "	1896	3,850 31		13,995 69	12,161 10
" " " "	1897	1,908 44	4,939 20	13,780 29	11,607 95
" " " "	1898	82,663 37	5,082 03	11,697 81	10,993 61
" " " "	1899	39,999 37		11,919 27	11,478 88
" " " "	1900	22,802 27	4,476 50	13,657 06	14,666 71
" " " "	1901	4,930 65	9,331 95	13,342 22	13,416 00
" " " "	1902		16,998 69	13,725 99	19,366 30
" " " "	1903		15,992 52	14,348 17	17,766 28
" " " "	1904		9,150 07	16,224 94	17,262 29
" " " "	1905		8,715 46	15,858 19	19,977 19
Total		†4,182,092 96	217,173 13	530,061 76	427,035 79

* Expenditure not given—records relating to same were kept in Ordnance Office at Montreal and were destroyed by fire in 1852.

† Included in total cost of Ottawa River Works, see page 19, cost of enlargement, $4,119,039.32.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

CULBUTE LOCK AND DAM.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation.	1868				
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872				
" " "	1873		835 53		
" " "	1874		38,388 99		
" " "	1875	63,659 29			
" " "	1876	76,842 44			
" " "	1877	56,081 87			
" " "	1878	5,933 53			
" " "	1879	20,694 19			
" " "	1880	16,688 20		202 50	259 31
" " "	1881	4,721 62		962 85	
" " "	1882	29,567 15		790 00	162 33
" " "	1883	14,249 60		695 00	288 99
" " "	1884	8,151 16		733 50	
" " "	1885	19,071 76		730 00	572 75
" " "	1886	26,385 27		730 00	2,396 14
" " "	1887	7,760 88		730 00	967 33
" " "	1888	7,573 99		739 50	730 60
" " "	1889	17,112 01		1,050 00	116 53
" " "	1890	2,818 35		747 83	
" " "	1891	2,183 15	9,122 05	745 25	499 91
" " "	1892		1,546 25	736 00	
" " "	1893		1,420 65	749 00	13 55
" " "	1894		2,540 14	730 00	494 43
" " "	1895		1,475 26	436 05	434 28
" " "	1896				
" " "	1897				
" " "	1898				100 00
" " "	1899				
" " "	1900	3,085 00			
" " "	1901	197 00			
" " "	1902		1,135 00		
" " "	1903				
" " "	1904		2,204 50		
" " "	1905		2,255 00		
Total		*382,776 46	60,923 37	11,507 48	7,036 15

* Included in total cost of Ottawa River Works, see page 19.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

RIDEAU CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Imperial Government	...	3,911,701 47	...	...	...
Government expenditure prior to Confederation	...	153,062 60	...	...	...
" since " "	1868	166 50	7,298 12	18,397 28	16,475 21
" " " "	1869	...	...	19,250 71	13,140 77
" " " "	1870	...	13 16	20,022 37	19,469 33
" " " "	1871	...	11,732 98	22,814 58	18,120 52
" " " "	1872	...	4,967 50	22,139 48	14,005 32
" " " "	1873	...	18,070 97	22,841 51	26,074 49
" " " "	1874	...	5,793 16	26,815 44	22,957 40
" " " "	1875	9,310 85	...	26,553 37	19,699 81
" " " "	1876	2,163 96	...	26,430 77	14,428 25
" " " "	1877	214 11	...	25,959 56	14,198 18
" " " "	1878	...	...	26,651 51	11,034 22
" " " "	1879	7,703 88	...	26,042 52	7,134 55
" " " "	1880	...	...	26,463 88	11,434 05
" " " "	1881	...	133 50	26,024 71	8,627 00
" " " "	1882	...	...	26,915 29	13,860 28
" " " "	1883	...	70 65	27 322 81	23,524 84
" " " "	1884	...	4,597 50	26,938 95	19,245 02
" " " "	1885	...	2,098 76	26,971 32	18,189 55
" " " "	1886	...	550 00	27,045 95	35,648 04
" " " "	1887	...	20,823 96	29,440 46	18,565 34
" " " "	1888	...	18,889 48	33,458 83	25,478 87
" " " "	1889	...	6,665 22	33,801 77	18,106 36
" " " "	1890	...	21,124 10	34,270 57	18,025 21
" " " "	1891	...	20,967 25	34,641 98	21,537 56
" " " "	1892	...	31,363 23	35,500 82	21,507 16
" " " "	1893	...	24,274 71	35,022 49	18,789 50
" " " "	1894	...	14,485 11	34,943 35	16,939 47
" " " "	1895	...	31,559 48	33,827 08	19,897 32
" " " "	1896	...	21,452 29	34,052 77	30,196 38
" " " "	1897	...	19,079 11	31,461 55	29,535 94
" " " "	1898	...	13,608 39	30,759 05	26,599 93
" " " "	1899	...	700 29	30,751 20	28,199 49
" " " "	1900	...	11,780 41	30,623 27	30,237 09
" " " "	1901	...	...	31,334 40	33,791 17
" " " "	1902	...	8,894 40	32,193 66	33,959 86
" " " "	1903	...	16,235 13	34,595 31	36,424 23
" " " "	1904	...	13,525 04	39,127 96	38,496 78
" " " "	1905	1,565 84	14,513 35	40,838 81	49,790 55
Total	...	*4,085,889 21	365,267 25	1,112,247 34	843,345 04

* Ottawa River Works.

Ste. Anne's Lock, page 16		$ 1,170,215 63
Carillon and Grenville Canal, page 17		4,182,092 96
Culbute Canal, paga 17		382,776 46
Rideau Canal, as above	$ 4,085,889 21	
Less expenditure by Imperial Government	3,911,701 47	
		174,187 74
Total Ottawa River Works (Capital)		$ 5,909,272 79
Add expenditure on slides and booms prior to Confederation	$ 719,247 13	
" " " " since "	7,243 60	
" on Chats Canals prior to Confederation	482,950 81	
" in 1881, charged to Miscellanous, see page 229, part ii, Public Accounts	1,136 84	
Add amount transferred, see page xxxvi, Public Accounts Balance Sheet, 1881	233,555 85	
		1,444,134 23
		$ 7,353,407 02
Less expenditure prior to Confederation, transferred to Income Account	$ 320,618 28	
Less expenditure in 1872, on Carillon and Grenville Canal, as shown in Public Accounts Balance Sheet, page xx, under Miscellaneous	165,257 28	
		485,875 56
Agreeing with Balance Sheet, Public Accounts, 1905, page 4		$ 6,867,531 46

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

S. LEONARD SHANNON,
Accountant.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

ST. OURS LOCK.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	....	121,537 65	....	....	....
" since "	1868	....	....	1,532 75	753 74
" " "	1869	....	....	1,755 15	1,399 18
" " "	1870	....	....	1,458 09	1,006 22
" " "	1871	....	....	1,414 48	1,210 98
" " "	1872	....	....	1,565 80	1,263 19
" " "	1873	....	....	2,076 50	1,575 10
" " "	1874	....	....	2,219 13	2,363 42
" " "	1875	....	....	1,362 22	1,245 69
" " "	1876	....	....	1,403 92	1,601 71
" " "	1877	....	....	1,533 40	750 80
" " "	1878	....	....	1,556 65	283 77
" " "	1879	....	....	1,581 55	456 07
" " "	1880	....	....	1,614 01	705 54
" " "	1881	....	....	1,741 97	1,299 77
" " "	1882	....	....	2,002 71	1,902 41
" " "	1883	17,230 32	....	2,361 65	2,188 08
" " "	1884	5,279 17	....	2,315 37	1,494 99
" " "	1885	4,700 64	....	2,271 57	3,652 63
" " "	1886	....	....	2,311 70	4,143 47
" " "	1887	....	....	2,175 37	5,864 78
" " "	1888	....	....	2,216 04	2,801 17
" " "	1889	17,964 45	....	2,421 14	2,002 63
" " "	1890	24,571 96	....	2,138 40	1,935 44
" " "	1891	21,696 74	....	2,011 08	4,460 16
" " "	1892	3,585 34	....	2,168 44	1,944 33
" " "	1893	....	....	2,136 66	1,994 34
" " "	1894	....	....	2,216 68	924 55
" " "	1895	....	....	2,161 63	915 50
" " "	1896	....	....	2,094 91	1,678 49
" " "	1897	....	....	2,135 60	707 06
" " "	1898	....	....	2,049 67	692 04
" " "	1899	....	....	2,244 12	1,494 93
" " "	1900	1,596 88	....	2,181 43	2,681 10
" " "	1901	3,610 06	....	2,128 25	1,681 44
" " "	1902	15,549 27	....	2,262 39	984 36
" " "	1903	9,344 89	....	2,288 63	1,671 83
" " "	1904	7,984 41	....	2,334 67	1,690 61
" " "	1905	14,900 90	....	2,479 66	1,716 35
Total ...	....	*121,537 65	148,015 03	75,923 39	67,137 87

* Included in the total cost of Chambly Canal and Richelieu River, *see* page 21.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

CHAMBLY CANAL.

	Year ending 30 June.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	...	634,711 76	.....	.....	.....
" since "	1868	....	.....	8,312 90	9,355 70
" " "	1869	... .	.....	8,437 22	13,120 97
" " "	1870	....	.....	8,934 41	20,180 73
" " "	1871	.....	2,839 85	10,214 71	22,426 33
" " "	1872	... ...	1,906 40	9,628 50	22,327 99
" " "	1873	... ...	759 00	10,390 44	11,789 27
" " "	1874	....	2,810 00	11,675 67	16,427 19
" " "	1875	2,415 00	....	12,201 99	16,306 91
" " "	1876	....	....	10,593 14	13,273 56
" " "	1877	80 00	.....	10,281 78	10,111 32
" " "	1878	....	... ...	10,413 99	6,022 96
" " "	1879	....	....	11,301 53	8,809 77
" " "	1880	... ...	....	11,516 22	12,377 74
" " "	1881	....	.....	13,950 47	20,705 17
" " "	1882	.....	31,796 41	16,686 78	16,843 60
" " "	1883	... ...	21,332 36	15,904 38	15,182 24
" " "	1884	... .	41,640 77	18,448 85	12,003 34
" " "	1885	....	21,049 23	18,378 55	13,046 95
" " "	1886	... ...	14,547 27	19,501 28	11,999 77
" " "	1887	... .	17,911 17	19,053 62	20,071 37
" " "	1888	.....	65,536 64	20,073 60	11,823 74
" " "	1889	.....	51,437 87	19,679 22	19,392 18
" " "	1890	.....	23,221 48	19,655 38	14,399 93
" " "	1891	....	43,344 41	19,204 76	11,399 93
" " "	1892	....	38,353 99	19,665 22	12,976 48
" " "	1893	....	21,127 65	19,310 29	12,451 03
" " "	1894	....	8,567 78	19,040 93	11,920 74
" " "	1895	... .	6,147 63	19,325 49	11,779 12
" " "	1896	... .	3,694 63	19,349 65	11,801 12
" " "	1897	.....	12,665 88	18,754 17	13,128 55
" " "	1898	....	13,184 68	17,992 90	12,466 51
" " "	1899	... ...	15,255 42	18,336 50	11,997 51
" " "	1900	....	5,448 88	18,397 58	13,995 00
" " "	1901	.. ..	1,195 09	18,529 48	17,572 35
" " "	1902	.....	19,132 80	18,832 25	17,313 02
" " "	1903	... .	8,977 43	19,286 10	21,745 65
" " "	1904	.....	26,701 59	21,544 69	25,656 00
" " "	1905	.....	33,066 50	26,970 79	19,896 57
		637,206 76			
Less proceeds of sale of piece of land.....		150 00			
Total		*637,056 76	553,652 81	609,775 43	564,098 31

* Chambly Canal and River Richelieu.

Chambly Canal, as above...		$ 637,056 76
St. Ours Lock, see page 20		121,537 65
		$ 758,594 41
Less amount deducted at Confederation, see Public Accounts, 1868, part i, page 9.....		
Government expenditure prior to Confederation, Chambly Canal, as above.....	$ 634,711 76	
St. Ours Lock, see page 20).....	121,537 65	
	$ 756,249 41	
Returned as an asset in Public Accounts, 1868.	433,807 83	
		322,441 58
Agreeing with Public Accounts, 1905, page 4.....		$ 436,152 83

S. LEONARD SHANNON.

DEPARTMENT OF RAILWAYS AND CANALS, *Accountant.*
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

MURRAY CANAL.

—	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation					
" since " "	1868		400 00		
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872				
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882	7,135 63			
" " "	1883	84,071 68			
" " "	1884	118,187 43			
" " "	1885	148,902 66			
" " "	1886	179,704 52			
" " "	1887	142,563 66			
" " "	1888	146,754 37			
" " "	1889	215,326 46			
" " "	1890	106,760 35		494 31	
" " "	1891	61,260 49		5,137 03	173 53
" " "	1892	5,964 22		5,803 48	3,505 15
" " "	1893	30,838 79		5,499 62	5,341 34
" " "	1894			5,667 52	5,295 57
" " "	1895			5,354 97	5,063 49
" " "	1896			5,409 10	5,410 33
" " "	1897			5,526 87	3,966 41
" " "	1898			5,799 94	4,710 23
" " "	1899			5,073 70	3,533 68
" " "	1900			5,613 83	2,777 60
" " "	1901			5,175 74	1,138 15
" " "	1902			5,254 51	6,377 19
" " "	1903	500 60		5,757 00	4,627 70
" " "	1904	750 00	2,521 13	5,291 43	6,075 94
" " "	1905	100 00	740 45	5,346 62	4,452 68
Total		*1,248,820 26	3,661 58	82,205 67	62,448 99

* Agreeing with Public Accounts Balance Sheet, 1905, page 4.

S. LEONARD SHANNON,
Accountant,

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c—*Continued.*

TRENT CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	....	309,371 31	.....	.....	.....
" since " ..	1868	.....	.....	.....	.....
" " " ..	1869	.....	.....	.....	.....
" " " ..	1870	.....	.....	.....	.....
" " " ..	1871	.....	.....	.....	.....
" " " ..	1872	.....	.....	.....	.....
" " " ..	1873	.....	.....	.....	.....
" " " ..	1874	.....	.....	.....	.....
" " " ..	1875	.....	.....	.....	.....
" " " ..	1876	.....	.....	.....	.....
" " " ..	1877	.....	.....	.....	.....
" " " ..	1878	.....	.....	.....	.....
" " " ..	1879	.....	.....	.....	.....
" " " ..	1880	561 50	.....	1,188 92	3,568 89
" " " ..	1881	.....	.....	2,489 93	2,233 50
" " " ..	1882	.....	5,836 51	2,011 92	8,115 50
" " " ..	1883	40,767 16	9,303 66	2,235 50	3,047 42
" " " ..	1884	120,393 91	6,198 57	2,208 64	5,264 35
" " " ..	1885	121,382 84	.....	3,303 87	4,653 50
" " " ..	1886	75,103 30	.....	1,639 75	5,917 88
" " " ..	1887	179,541 63	.....	1,938 08	6,008 88
" " " ..	1888	114,879 35	.....	1,770 29	5,151 42
" " " ..	1889	47,592 13	29,677 92	3,242 05	5,935 94
" " " ..	1890	58,644 50	11,522 65	3,450 99	730 55
" " " ..	1891	9,826 49	3,164 81	3,803 66	4,888 98
" " " ..	1892	4,457 28	6,506 97	3,695 85	4,721 85
" " " ..	1893	5,962 47	10,838 90	3,739 86	2,087 17
" " " ..	1894	3,412 32	20,403 93	3,785 47	4,988 59
" " " ..	1895	53,907 70	21,143 41	4,184 18	3,374 49
" " " ..	1896	392,976 08	6,185 75	4,349 34	3,329 97
" " " ..	1897	486,575 70	13,880 37	4,965 39	3,497 90
" " " ..	1898	351,273 31	8,991 54	5,034 60	4,998 80
" " " ..	1899	166,611 49	6,179 79	5,048 72	6,454 49
" " " ..	1900	334,583 01	8,043 39	5,131 52	9,989 26
" " " ..	1901	284,503 89	10,494 82	5,254 51	13,075 89
" " " ..	1902	449,075 45	26,165 93	5,575 52	14,984 88
" " " ..	1903	523,950 74	18,548 58	6,993 25	10,791 15
" " " ..	1904	489,038 44	21,228 55	7,237 05	21,179 12
" " " ..	1905	333,261 75	36,853 28	12,071 88	26,056 78
Total	.....	*4,957,653 75	281,169 33	106,350 74	185,047 15

* Total expenditure on Capital Account as above $4,957,653 75

LESS—Expenditure prior to Confederation .. .. $ 309,371 31

" Year 1880. ..... 561 50

309,932 81

Agreeing with Public Accounts Balance Sheet, 1905, page 4..... $4,647,720 94

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

TAY CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation.	1868				
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872				
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882		748 65		
" " "	1883	4,831 80			
" " "	1884	50,878 12			
" " "	1885	92,473 97			
" " "	1886	65,561 51			
" " "	1887	49,617 92			
" " "	1888	54,166 57			
" " "	1889	89,486 18			
" " "	1890	22,226 23		*	*
" " "	1891	17,114 78		*	*
" " "	1892	29,771 65		*	*
" " "	1893			*	*
" " "	1894			*	*
" " "	1895			*	*
" " "	1896			*	*
" " "	1897	10,720 50		*	*
" " "	1898			*	*
" " "	1899			*	*
" " "	1900	2,750 00		*	*
" " "	1901			*	*
" " "	1902			*	*
" " "	1903			*	*
" " "	1904			*	*
" " "	1905			*	*
Total		†489,599 23	748 65	*	*

* Included in Rideau Canal.
† Agreeing with Public Accounts, 1905, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

SAULT STE. MARIE CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation	1868				
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872		949 35		
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882				
" " "	1883				
" " "	1884				
" " "	1885				
" " "	1886				
" " "	1887				
" " "	1888	8,145 06			
" " "	1889	34,018 95			
" " "	1890	176,568 55			
" " "	1891	325,336 33			
" " "	1892	341,474 31			
" " "	1893	589,801 25			
" " "	1894	1,316,529 29			
" " "	1895	466,151 50		3,432 73	
" " "	1896	189,986 59		16,074 70	2,650 17
" " "	1897	209,561 82		15,381 59	7,671 79
" " "	1898	21,004 56		14,389 92	8,172 09
" " "	1899	63,935 48		13,840 24	6,564 40
" " "	1900	27,157 98		13,901 40	13,219 87
" " "	1901	323,353 93	48 39	13,730 93	10,289 18
" " "	1902	122,505 73		15,920 80	14,839 71
" " "	1903	65,933 43		16,077 22	10,855 70
" " "	1904	32,029 54		14,653 35	9,491 44
" " "	1905	110,181 69		15,681 55	14,776 33
Total		*4 423,675 99	997 74	153,084 43	98,530 68

Agreeing with Public Accounts, 1905, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

SOULANGES CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	...	.....	.....	.....	.....
" since " "	1868	.....	.....	.....	.....
" " " "	1869	.....	.....	.....	.....
" " " "	1870	.....	.....	.....	.....
" " " "	1871	.....	.....	.....	.....
" " " "	1872	.....	.....	.....	.....
" " " "	1873	.....	.....	.....	.....
" " " "	1874	.....	.....	.....	.....
" " " "	1875	.....	.....	.....	.....
" " " "	1876	.....	.....	.....	.....
" " " "	1877	.....	.....	.....	.....
" " " "	1878	.....	.....	.....	.....
" " " "	1879	.....	.....	.....	.....
" " " "	1880	.....	.....	.....	.....
" " " "	1881	.....	.....	.....	.....
" " " "	1882	.....	.....	.....	.....
" " " "	1883	.....	.....	.....	.....
" " " "	1884	.....	.....	.....	.....
" " " "	1885	.....	.....	.....	.....
" " " "	1886	.....	.....	.....	.....
" " " "	1887	.....	.....	.....	.....
" " " "	1888	.....	.....	.....	.....
" " " "	1889	.....	.....	.....	.....
" " " "	1890	.....	.....	.....	.....
" " " "	1891	.....	.....	.....	.....
" " " "	1892	54,235 76	.....	.....	.....
" " " "	1893	210,336 24	.....	.....	.....
" " " "	1894	723,380 95	.....	.....	.....
" " " "	1895	752,016 53	.....	.....	.....
" " " "	1896	535,939 07	.....	.....	.....
" " " "	1897	363,126 06	.....	.....	.....
" " " "	1898	1,016,401 00	.....	.....	.....
" " " "	1899	1,442,824 22	.....	.....	.....
" " " "	1900	693,806 24	.....	6,711 84	5,000 00
" " " "	1901	462,626 36	115 00	25,154 78	5,888 77
" " " "	1902	235,021 79	.....	22,672 50	2,267 13
" " " "	1903	248,929 10	.....	31,987 06	10,362 23
" " " "	1904	113,328 45	15,608 69	25,235 25	39,382 01
" " " "	1905	34,202 71	30,406 25	25,432 49	21,174 84
Total.....	.....	*6,886,174 48	46,129 94	137,193 92	84,074 98

* Included in total cost of St. Lawrence River and Canals, *see* part i, page 9.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENT showing amount expended on Construction and Enlargement of Canals, to June 30, 1905.

Canal.		Construction.	Enlargement.	Total.
		$ cts.	$ cts.	$ cts.
St. Peters		248,762 84	399,784 30	648,547 14
Lachine		2,589,532 85	8,885,578 80	11,475,111 65
Beauharnois		1,636,690 26		1,636,690 26
St. Lawrence River and Canals		18,442 85	3,108,984 37	3,127,427 22
Lake St. Louis			298,176 11	298,176 11
Lake St. Francis			75,906 71	75,906 71
Cornwall		1,945,624 73	5,235,562 85	7,181,187 58
Williamsburg	Farran's Point		877,090 57	10,185,853 21
	Galops		5,819,923 75	
	Rapide Plat		2,157,487 09	
	Williamsburg	1,320,655 54	10,696 26	
Welland		7,693,824 03	18,386,542 10	26,080,366 13
St. Anne's		134,456 51	1,035,759 12	1,170,215 63
*Carillon and Grenville		63,053 64	4,119,039 32	4,182,092 96
Culbute		382,776 46		382,776 46
Rideau		4,085,889 21		4,085,889 21
St. Ours		121,537 65		121,537 65
Chambly		637,056 76		637,056 76
Murray		1,248,820 26		1,248,820 26
Trent		4,957,653 75		4,957,653 75
Tay		489,599 23		489,599 23
Sault Ste. Marie		4,423,675 99		4,423,675 99
Soulanges		6,886,174 48		6,886,174 48
Total		38,884,227 04	50,410,531 35	89,294,758 39

* Construction by Imperial Government not included, records relating to same were kept in Ordnance Office, Montreal, and were destroyed by fire in 1852.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

*RECAPITULATION—EXPENDITURE on Canals, also showing Revenue received.

	Year ending June 30.	Capital.	Income.	Staff.	Repairs.	Revenue received.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation, including Imperial Government		20,593,866 13	98,378 46			
Government expenditure since Confederation	1868	33,784 06	95,347 79	113,084 50	101,646 44	403,879 19
" "	1869	126,898 20	55 00	116,069 76	118,579 31	400,263 32
" "	1870		90,355 96	120,403 02	150,176 70	414,687 02
" "	1871		116,429 54	135,040 81	140,467 52	488,538 76
" "	1872	255,645 75	33,289 27	124,137 09	152,086 25	466,847 52
" "	1873	256,547 27	127,369 55	148,581 18	186,573 13	486,433 26
" "	1874	1,189,591 91	51,037 05	167,194 40	213,613 86	510,755 99
" "	1875	1,714,830 37	479 00	168,401 21	203,226 85	414,979 59
" "	1876	2,388,733 46	810 75	178,411 80	190,578 45	390,337 04
" "	1877	4,131,374 30	22 30	179,661 40	138,448 51	390,857 37
" "	1878	3,843,338 62		187,521 31	122,251 60	373,814 17
" "	1879	3,064,098 61		191,892 44	115,349 99	337,675 13
" "	1880	2,123,366 34		195,039 33	147,167 52	341,598 14
" "	1881	2,075,891 65	7,246 69	197,573 62	154,653 63	361,558 17
" "	1882	1,593,174 09	55,025 03	224,572 61	187,399 02	325,231 54
" "	1883	1,763,001 97	62,503 14	269,415 01	178,617 86	361,604 01
" "	1884	1,577,295 42	60,993 99	280,657 29	192,219 38	372,561 69
" "	1885	1,504,621 47	58,297 59	280,226 20	201,708 47	321,289 47
" "	1886	1,333,324 80	31,984 02	282,323 63	198,251 97	328,977 43
" "	1887	1,783,698 16	65,983 06	285,172 62	198,888 84	321,784 88
" "	1888	1,033,118 34	120,561 59	292,458 76	201,928 93	317,902 04
" "	1889	972,918 43	162,015 49	301,040 23	240,261 36	333,188 90
" "	1890	1,026,364 24	146,853 54	290,516 63	176,089 00	354,816 92
" "	1891	1,318,092 15	165,843 87	294,562 12	204,768 45	349,431 90
" "	1892	1,437,149 30	194,129 61	293,115 58	231,089 54	324,475 24
" "	1893	2,069,573 30	196,185 84	291,588 97	204,759 39	357,089 87
" "	1894	3,027,164 19	109,216 33	294,446 34	179,630 13	387,788 97
" "	1895	2,452,273 65	216,057 58	281,477 04	164,033 71	339,890 49
" "	1896	2,258,778 97	85,820 49	292,121 05	209,321 60	339,538 72
" "	1897	2,348,636 91	101,205 74	287,970 36	178,385 47	384,780 53
" "	1898	3,207,249 79	82,400 55	280,872 44	203,478 86	407,652 81
" "	1899	3,899,877 31	82,205 60	280,628 57	202,312 36	369,044 38
" "	1900	2,639,564 93	120,653 93	292,609 24	227,626 97	322,642 86
" "	1901	2,360,569 89	135,500 57	314,095 04	262,876 07	315,425 69
" "	1902	2,114,689 88	213,044 91	317,838 61	263,768 27	300,413 68
" "	1903	1,823,273 61	275,103 58	390,281 82	294,113 92	230,213 15
" "	1904	1,880,787 20	298,678 23	381,016 82	350,278 54	79,536 51
" "	1905	2,071,593 72	352,855 43	431,499 60	401,742 79	78,009 21
Total		89,294,758 39	4,013,941 07	9,453,518 45	7,488,370 66	13,405,515 56

*This does not include expenditure which has been charged to Canals—General—but amounts expended on specified canals.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, October 31, 1905.

HYDRAULIC AND OTHER RENTS.

Balances due July 1.	Accrued during the Year ended June 30.	Totals.	1904-1905.	Abatement.	Deposited to the credit of the Receiver General.	Balances due June 30.	Totals.
$ cts.	$ cts.	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.
39,036 08	28,716 66	67,752 74	Welland Canal	156 23	18,183 16	19,413 35	67,752 74
1,600 17	1,882 00	3,482 17	Williamsburg Canal	10 00	942 50	2,529 67	3,482 17
3,445 87	8,907 75	12,353 62	Cornwall Canal		5,123 00	7,230 62	12,353 62
12,384 84	3,704 00	16,088 84	Beauharnois Canal	37 50	2,959 00	13,092 34	16,088 84
19,876 50	55,698 46	75,574 96	Lachine Canal	1,146 75	38,245 10	35,883 11	75,574 96
675 84	176 00	851 84	Chambly Canal	118 75	182 25	550 84	851 84
3,759 56	3,648 35	7,407 91	Rideau Canal	325 74	3,092 41	3,989 76	7,407 91
1,582 95	2,625 04	4,207 99	Trent Valley Canal		3,774 04	433 95	4,207 99
10 00	500 00	510 00	Sault Ste. Marie Canal		185 00	25 00	510 00
15,575 00	5,500 00	21,075 00	Carillon and Grenville Canal	24 17	517 00	20,533 83	21,075 00
	3,000 00	3,000 00	Soulanges Canal		3,000 00		3,000 00
9 00	38 00	47 00	Sundry Canals		13 00	1 00	47 00
97,955 81	114,396 26	212,352 07	Totals	2,119 14	76,546 46	133,686 47	212,352 07

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, October 31, 1905.

REVENUE STATEMENT.

Canal Revenue.				Total Canal Revenue Accrued.	Hydraulic and Other Rents, &c.	Total.	Collection Divisions.	Deposited to the Credit of the Receiver General.		Total.	Cost of Staff, Repairs and Offices of Collection chargeable to Revenue.
Tolls.	Wharfage and Storage.	Fines.	Other Receipts.					On Account Canal Revenue.	On Account Hydraulic Rents.		
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.
	0 96			0 96	997 50	998 46	*Welland Canal*				208,114 88
	281 08			281 08	1,454 50	1,735 58	Port Colborne	0 96	997 50	998 46	3,585 75
					226 00	226 00	Port Dalhousie	281 08	1,454 50	1,735 58	2,180 15
							Dunnville		226 00	226 00	773 26
	1 00			1 00	15,505 16	15,506 16	St. Catharines	1 00	15,505 16	15,506 16	201 25
							Chippawa				125 00
	283 04			283 04	18,183 16	18,466 20	Totals	283 04	18,183 16	18,466 20	214,980 29
							St. Lawrence Canals	44 00		44 00	369,530 82
	16 00	20 00	8 00	44 00	3,000 00	3,044 00	Coteau Landing		3,000 00	3,000 00	1,460 72
	4 00			4 00	2,959 00	2,963 00	Beauharnois	4 00	2,959 00	2,963 00	960 10
		20 00		20 00	5,123 00	5,143 00	Cornwall	20 00	5,123 00	5,143 00	1,751 07
		100 00		100 00	942 50	1,042 50	Cardinal	100 00	942 50	1,042 50	1,044 40
	766 80	5 00		771 80		771 80	Lachine	771 80		771 80	2,221 27
	377 02			377 02	38,246 10	38,623 12	Montreal	377 02	38,246 10	38,623 12	8,225 69
							Kingston				695 70
	1,163 82	145 00	8 00	1,316 82	50,270 60	51,587 42	Totals	1,316 82	50,270 60	51,587 42	385,889 77
							Chambly Canal				51,966 67
					106 25	106 25	Chambly		106 25	106 25	1,562 21
		2 00		2 00	76 00	78 00	St. John's	2 00	76 00	78 00	1,562 39
							St. Ours				692 00
		2 00		2 00	182 25	184 25	Totals	2 00	182 25	184 25	55,783 27
							Ottawa Canals				45,229 83
							Ottawa				
	12 00			12 00	473 00	485 00	Grenville	12 00	473 00	485 00	474 54
		4 00		4 00	44 00	48 00	Carillon	4 00	44 00	48 00	689 26
							St. Anne's Lock				805 55
	12 00	4 00		16 00	517 00	533 00	Totals	16 00	517 00	533 00	47,199 18

						Rideau Canal					91,190 36
	196 86			196 86	2,705 56	2,902 42	Ottawa	196 86	2,705 56	2,902 42	2,594 18
					282 50	282 50	Kingston Mills		282 50	282 50	436 75
	19 00			19 00	104 35	123 35	Smith's Falls	19 00	104 35	123 35	359 40
	215 86			215 86	3,092 41	3,308 27	Totals	215 86	3,092 41	3,308 27	94,580 69
											4,065 80
					32 00	32 00	*St. Peters Canal*		32 00	32 00	200 00
							Totals		32 00	32 00	4,265 80
							Murray Canal				10,188 10
					10 00	10 00	Brighton		10 00	10 00	746 20
					10 00	10 00	Totals		10 00	10 00	10,934 30
							Trent Valley Canal				38,128 66
					2 00	2 00	Burleigh		2 00	2 00	
	14 00			14 00		14 00	Bobcaygeon	14 00		14 00	
							Trenton Falls				
							Hastings				
					3,772 04	3,772 04	Peterborough		3,772 04	3,772 04	180 60
							Buckhorn				
	14 00			14 00	3,774 04	3,788 04	Totals	14 00	3,774 04	3,788 04	38,309 26
					485 00	485 00	*Sault Ste. Marie Canal*		485 00	485 00	31,776 18
	1,688 72	151 00	8 00	1,847 72	76,546 46	78,394 18		1,847 72	76,546 46	78,394 18	883,718 74
							Dredge Vessels				12,015 97
							Inspection				
							Department of Public Printing and Stationery				530 58
							General				1,492 17
							Grand totals				
							Less—Refunds			384 97	897,757 46
							Net Revenue			78,009 21	

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, October 31, 1905.

INTERCOLONIAL RAILWAY.

(Including amounts paid to Nova Scotia Railway and European and North American Railway, N.B.)

—	Year.	Construction.	Income.	Working Expenses including Windsor Branch Ry.	Revenue received, including Windsor Branch Ry.
		$ cts.	$ cts.	$ cts.	$ cts.
Expenditure prior to Confederation		10,766,725 54			
" since "	1868	483,353 65		359,961 08	420,752 58
" " "	1869	282,615 18		387,548 47	455,022 76
" " "	1870	1,729,381 49		445,208 75	471,245 09
" " "	1871	2,916,782 13		442,993 31	565,713 52
" " "	1872	5,131,141 51		595,076 22	622,900 56
" " "	1873	5,201,450 37		1,011,892 60	703,458 26
" " "	1874	3,614,898 81		1,847,175 24	893,430 17
" " "	1875	3,426,099 55		1,532,589 62	861,593 43
" " "	1876	1,108,321 59		1,277,197 79	848,861 46
" " "	1877	1,318,352 19		1,661,672 55	1,154,445 35
" " "	1878	408,816 74		1,811,273 56	1,378,946 78
" " "	1879	226,639 19		2,010,183 22	1,294,099 69
" " "	1880	2,048,014 60		1,607,956 70	1,520,310 45
" " "	1881	608,732 80		1,780,353 53	1,777,856 76
" " "	1882	585,568 79		2,080,592 37	2,100,315 85
" " "	1883	1,616,632 96		2,383,477 20	2,395,034 99
" " "	1884	1,405,377 52		2,366,719 95	2,376,666 19
" " "	1885	1,195,363 08		2,460,229 87	2,392,605 00
" " "	1886	544,958 17		2,508,473 10	2,406,858 88
" " "	1887	823,070 86		2,854,158 91	2,621,337 41
" " "	1888	742,203 09		3,300,481 94	2,937,337 40
" " "	1889	655,228 13		3,174,785 19	2,923,736 46
" " "	1890	365,246 48		3,500,455 80	2,958,243 38
" " "	1891	79,929 34		3,691,273 65	3,007,630 51
" " "	1892	168,101 77		3,458,891 39	2,978,950 82
" " "	1893	228,984 79		3,062,207 45	3,099,815 20
" " "	1894	166,362 43		2,999,317 07	3,020,485 74
" " "	1895	327,034 51		2,964,940 98	2,979,795 59
" " "	1896	259,105 23		3,029,304 08	2,994,201 93
" " "	1897	145,142 00		2,936,789 71	2,906,631 25
" " "	1898	252,367 20	70,000 00	3,275,830 14	3,154,896 49
" " "	1899	1,081,929 94	210,000 00	3,478,559 30	3,775,558 08
" " "	1900	1,796,348 29		4,444,296 25	4,599,423 14
" " "	1901	3,633,836 57		5,477,285 30	5,019,497 76
" " "	1902	4,621,841 05		5,596,939 57	5,720,990 50
" " "	1903	2,254,256 68		6,214,496 38	6,366,884 53
" " "	1904	†1,880,856 60		7,264,263 13	6,392,865 48
" " "	1905	3,937,621 93		8,535,689 91	6,833,561 50
Total		*68,038,702 75	280,000 00	107,824,542 28	98,931,960 94

* Including $296,672.90 charged to 'Consolidated Fund.'

† Expenditure for year $1,894,856 90
Less refunds of previous years. 14,000 30

$1,880,856 60

INTERCOLONIAL RAILWAY—*Concluded.*

Total cost of construction as shown on page 32			$68,038,702 75
Less amounts transferred from Capital to Consolidated Fund as follows:—			
	Nova Scotia Ry.	European and North American Ry.	
1868	$ 16,800 99	$ 11,302 89	
1870	34,403 45	1,749 21	
1871	50,405 69		
1873	106,899 59	75,311 08	
	$ 208,509 72	$ 88,363 18	
		208,509 72	
			296,872 90
			867,741,829 85
Cape Breton Railway, page 37			3,860,679 14
Oxford and New Glasgow Railway, page 36			1,949,063 21
Eastern Extension Railway, page 34			1,324,042 81
Montreal and European Short Line Railway, page 38			333,942 72
Drummond County Railway, page 42			1,464,000 00
Canada Eastern Railway, page 45			800,000 00
Total capital cost of Intercolonial Railway system			*877,473,557 73

*Agreeing with Public Accounts, 1904-5, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

EASTERN EXTENSION RAILWAY.

	Year.	Capital.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Conferation				
" since " "	1868			
" " " "	1869			
" " " "	1870			
" " " "	1871			
" " " "	1872			
" " " "	1873			
" " " "	1874			
" " " "	1875			
" " " "	1876			
" " " "	1877			
" " " "	1878			
" " " "	1879			
" " " "	1880			
" " " "	1881			
" " " "	1882			
" " " "	1883			
" " " "	1884	1,284,311 97	10,033 77	30,767 66
" " " "	1885	2,055 92	78,273 65	73,050 01
" " " "	1886	183 79	94,756 06	66,893 11
" " " "	1887		94,254 04	64,107 10
" " " "	1888		90,954 73	70,552 20
" " " "	1889	34,235 73	90,719 04	72,436 65
" " " "	1890		79,102 77	84,658 95
" " " "	1891	3,255 40	*	†
" " " "	1892		*	†
" " " "	1893		*	†
" " " "	1894		*	†
" " " "	1895		*	†
" " " "	1896		*	†
" " " "	1897		*	†
" " " "	1898		*	†
" " " "	1899		*	†
" " " "	1900		*	†
" " " "	1901		*	†
" " " "	1902		*	†
" " " "	1903		*	†
" " " "	1904		*	†
" " " "	1905		*	†
Total		‡ 1,324,042 81	538,094 06	462,465 68

* Included in Intercolonial Railway expenses. † Included in Intercolonial Railway revenue.
‡ Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

CARLETON BRANCH RAILWAY.

——	Year.	Capital.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to confederation				
" since "	1868			
" " "	1869			
" " "	1870			
" " "	1871			
" " "	1872			
" " "	1873			
" " "	1874			
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" " "	1884			
" " "	1885			
" " "	1886	85,610 69		
" " "	1887	2,299 62		
" " "	1888	500 17		
" " "	1889			
" " "	1890			
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" " "	1899			
" " "	1900			
" " "	1901			
" " "	1902			
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" " "	1904			
" " "	1905			
Total.		*88,410 48		

* Victoria, chap. 6, transferred the Carleton Branch Railway to the city of St. John, N.B., for the sum of $40,000, which sum was paid in March, 1893, to the Receiver General.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

OXFORD AND NEW GLASGOW.

	Year.	Capital.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
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" " "	1886		
" " "	1887		
" " "	1888	280,932 35	
" " "	1889	840,553 57	
" " "	1890	434,074 60	
" " "	1891	220,886 39	
" " "	1892	48,745 23	
" " "	1893	7,922 80	
" " "	1894	112,382 75	
" " "	1895	*	
" " "	1896	*	
" " "	1897	3,565 52	
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
Total		‡ 1,949,063 21	†

* Included in Intercolonial Railway Capital. † Included in Intercolonial Railway working expenses.
‡ Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

CAPE BRETON RAILWAY.

	Year.	Capital.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
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" " "	1884		
" " "	1885		
" " "	1886		
" " "	1887	76,501 89	
" " "	1888	689,450 50	
" " "	1889	1,083,276 60	
" " "	1890	1,170,523 62	
" " "	1891	521,441 62	
" " "	1892	99,936 96	
" " "	1893	59,982 74	
" " "	1894	158,770 61	
" " "	1895	*	
" " "	1896	*	
" " "	1897	405 00	
" " "	1898	389 60	
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
Total		§3,860,679 14	†

*Included in Intercolonial Railway capital. †Included in Intercolonial Railway working expenses.
§Included in total cost of Intercolonial Railway system, see page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

MONTREAL AND EUROPEAN SHORT LINE RAILWAY.

	Year.	Construction.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since " "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
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" " "	1884		
" " "	1885	49,587 45	
" " "	1886	135,214 38	
" " "	1887	24,157 32	
" " "	1888	397 35	
" " "	1889		
" " "	1890		
" " "	1891	124,568 23	
" " "	1892		
" " "	1893		
" " "	1894	17 99	
" " "	1895		
" " "	1896		
" " "	1897		
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
Total		*333,942 72	

* Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

PRINCE EDWARD ISLAND RAILWAY.

	Year.	Construction.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		3,114,735 11		
" since "	1874		750 00	
" " "	1875	46,086 63	49,344 62	24,493 99
" " "	1876	42,546 10	219,930 43	118,060 96
" " "	1877	200,000 00	228,595 25	130,664 92
" " "	1878	6,551 86	221,599 49	135,899 60
" " "	1879	40,129 05	223,313 12	125,855 91
" " "	1880	16,539 82	164,640 55	113,851 11
" " "	1881		203,122 88	131,131 43
" " "	1882	402 03	228,259 97	137,267 54
" " "	1883	57,186 02	252,808 41	146,170 42
" " "	1884	130,663 38	236,428 13	144,504 12
" " "	1885	76,956 56	211,207 01	158,588 06
" " "	1886	4,668 33	216,744 34	155,584 36
" " "	1887	5,800 00	204,237 45	155,303 37
" " "	1888		229,639 95	158,363 62
" " "	1889		247,559 44	171,369 56
" " "	1890		266,485 85	160,971 78
" " "	1891		257,990 08	174,258 05
" " "	1892	8,300 49	289,706 38	157,442 69
" " "	1893		226,422 17	162,690 42
" " "	1894		226,891 06	158,533 83
" " "	1895		232,905 19	149,654 78
" " "	1896		225,138 56	146,476 54
" " "	1897		240,489 90	153,443 13
" " "	1898	17,541 88	231,418 74	158,950 61
" " "	1899	22,000 00	218,053 01	165,012 03
" " "	1900	53,546 02	220,931 81	174,738 73
" " "	1901	280,173 93	261,766 24	193,883 48
" " "	1902	475,997 94	270,159 97	197,999 93
" " "	1903	829,414 18	259,637 82	217,714 24
" " "	1904	698,877 47	335,695 44	234,390 03
" " "	1905	591,412 65	370,464 44	217,330 61
Total		*6,719,529 45	7,272,337 70	4,830,599 85

* Agrees with Public Accounts Balance Sheet, 1903-1904, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

CANADIAN PACIFIC RAILWAY.

	Year.	Construction, including Subsidy of $25,000,000.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation				
" since "	1868			
" " "	1869			
" " "	1870			
" " "	1871	30,148 32		
" " "	1872	489,428 16		
" " "	1873	561,818 44		
" " "	1874	310,224 88		
" " "	1875	1,546,241 67		
" " "	1876	3,346,567 06		
" " "	1877	1,691,149 97		
" " "	1878	2,228,373 13		
" " "	1879	2,240,285 47		
" " "	1880	4,044,522 72	78,892 01	104,975 69
" " "	1881	4,968,503 93	236,944 98	291,498 06
" " "	1882	(1) 4,589,075 79	1,786 20	
" " "	1883	(2) 10,033,800 04	266 09	
" " "	1884	(3) 11,192,722 02	327 02	
" " "	1885	(4) 9,900,281 53		
" " "	1886	(5) 3,672,584 81		
" " "	1887	(6) 915,057 49		
" " "	1888	52,098 65		
" " "	1889	86,716 07		
" " "	1890	40,980 54		
" " "	1891	37,367 00		
" " "	1892	66,211 39		
" " "	1893	413,836 49		
" " "	1894	146,539 87		
" " "	1895	49,209 77		
" " "	1896	65,669 49		
" " "	1897	14,054 50		
" " "	1898	692 17		
" " "	1899	8,418 53		
" " "	1900	236 11		
" " "	1901	8,978 87		
" " "	1902	448 70		
" " "	1903			
" " "	1904	33,076 39		
" " "	1905			
Total		*62,785,319 97	318,216 30	396,473 75

* Agrees with Public Accounts Balance Sheet, 1904-1905, page 8.

(1) Including .....$ 2,210,000 00 on account subsidy.
(2) " ..... 5,323,076 60 "
(3) " ..... 7,254,208 27 "
(4) " ..... 6,862,201 00 "
(5) " ..... 2,890,427 00 "
(6) " ..... 460,087 13 "

†$25,000,000 00

† *See* also Statement No. 3, page 50, for the expenditure.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

ANNAPOLIS AND DIGBY RAILWAY.

	Year.	Capital.	Income Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation			
" since "	1868		
" " "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
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" " "	1888		
" " "	1889	9,847 27	
" " "	1890	381,942 75	
" " "	1891	196,869 36	
" " "	1892	26,129 89	
" " "	1893	2,190 62	
" " "	1894	1,675 36	
" " "	1895	570 55	
" " "	1896		
" " "	1897	41,457 29	
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		8,381 82
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
Total		*660,683 09	8,381 82

* Of this amount Parliament voted under 52 Vic., chap. 8, the sum of $500,000 as a subsidy to the Western Counties Railway.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

DRUMMOND COUNTY RAILWAY.

	Year.	Construction.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since " "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
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" " "	1897		
" " "	1898		
" " "	1899		
" " "	1900	1,459,000 00	
" " "	1901		
" " "	1902	5,000 00	
" " "	1903		
" " "	1904		
" " "	1905		
Total		*1,464,000 00	

* Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

YUKON TERRITORY WORKS.

(Stikine Teslin Railway.)

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since "	1868	
" " "	1869	
" " "	1870	
" " "	1871	
" " "	1872	
" " "	1873	
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" " "	1896	
" " "	1897	
" " "	1898	
" " "	1899	
" " "	1900	
" " "	1901	
" " "	1902	283,323 55
" " "	1903	
" " "	1904	
" " "	1905	
Total		*283,323 55

* Agrees with Public Accounts Balance Sheet, 1904–1905, page 8.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, October 31, 1905.

STATEMENTS OF THE ACCOUNTANT.

National Transcontinental Railway.

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since "	1868	
" "	1869	
" "	1870	
" "	1871	
" "	1872	
" "	1873	
" "	1874	
" "	1875	
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" "	1898	
" "	1899	
" "	1900	
" "	1901	
" "	1902	
" "	1903	
" "	1904	6,249 40
" "	1905	778,491 28
Total		* 784,740 68

* Agrees with Public Accounts Balance Sheet, 1904-1905, page 8.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

STATEMENTS OF THE ACCOUNTANT.

Canada Eastern Railway.

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since " "	1868	
" " "	1869	
" " "	1870	
" " "	1871	
" " "	1872	
" " "	1873	
" " "	1874	
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" " "	1899	
" " "	1900	
" " "	1901	
" " "	1902	
" " "	1903	
" " "	1904	
" " "	1905	800,000 00
Total		*800,000 00

* Included in total cost of Intercolonial Railway System, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

STATEMENT showing amount expended on Capital Account on Railways.

Railways.	—	—
	$ cts.	$ cts.
Intercolonial	67,741,829 85	
Cape Breton	3,860,679 14	
Oxford and New Glasgow	1,949,063 21	
Eastern Extension	1,324,042 81	
Drummond County	1,464,000 00	
Montreal and European Short Line	333,942 72	
Canada Eastern	800,000 00	
		77,473,557 73
Carleton Branch		48,410 48
Prince Edward Island		6,719,529 45
Canadian Pacific		62,785,319 97
Annapolis and Digby		660,683 09
Yukon Territory Works (Stikine-Teslin Ry)		283,323 55
National Transcontinental		784,740 68
Governor Generals Car		17,955 93
Total		148,773,520 88

Memo. re Recapitulation—Railways.

Total cost as per statement above	148,773,520 88
Add amounts transferred from Capital to Consolidated Fund, Intercolonial Railway, see statement, page 33	296,872 90
Agreeing with total cost of construction, as per statement, page 47	149,070,393 78

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

RECAPITULATION—GOVERNMENT RAILWAYS.

	Year.	Construction.	Working Expenses.	Revenue.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	.....	13,881,460 65	.....	.....
" since "	1868	483,353 65	359,961 08	420,752 58
" " "	1869	282,615 18	387,548 47	455,022 76
" " "	1870	1,729,381 49	445,208 75	471,245 09
" " "	1871	2,946,930 45	442,993 31	565,713 52
" " "	1872	5,620,569 67	595,076 22	622,900 56
" " "	1873	5,763,268 81	1,011,892 60	703,458 26
" " "	1874	3,925,123 69	1,847,925 24	893,430 17
" " "	1875	5,018,427 85	1,581,934 24	886,087 42
" " "	1876	4,497,434 75	1,497,128 22	966,922 42
" " "	1877	3,209,502 16	1,890,268 80	1,285,110 27
" " "	1878	2,643,741 73	2,032,873 05	1,514,846 38
" " "	1879	2,507,053 71	2,233,496 34	1,419,955 60
" " "	1880	6,109,077 14	1,851,489 26	1,739,137 25
" " "	1881	5,577,236 73	2,220,421 39	2,200,486 25
" " "	1882	5,175,046 61	2,310,638 54	2,237,583 39
" " "	1883	11,707,619 02	2,636,551 70	2,541,205 41
" " "	1884	14,013,074 89	2,613,508 87	2,551,937 97
" " "	1885	11,224,244 54	2,749,710 53	2,624,243 07
" " "	1886	4,443,220 17	2,819,973 50	2,628,336 35
" " "	1887	1,846,887 18	3,152,650 40	2,840,747 88
" " "	1888	1,765,582 11	3,621,076 62	3,166,253 22
" " "	1889	2,709,857 37	3,513,063 67	3,167,542 67
" " "	1890	2,392,767 99	3,846,044 42	3,203,874 11
" " "	1891	1,184,317 34	3,949,263 73	3,181,888 56
" " "	1892	417,425 73	3,748,597 77	3,136,393 51
" " "	1893	712,917 44	3,288,629 62	3,262,505 62
" " "	1894	585,749 01	3,226,208 13	3,179,019 57
" " "	1895	376,814 83	3,197,846 17	3,129,450 37
" " "	1896	324,774 72	3,254,442 64	3,140,678 47
" " "	1897	204,624 31	3,195,959 58	3,060,074 38
" " "	1898	270,990 85	3,507,248 88	3,313,847 10
" " "	1899	1,112,348 47	3,696,612 31	3,940,570 11
" " "	1900	3,309,130 42	4,665,228 06	4,774,161 87
" " "	1901	3,922,989 37	5,739,051 54	5,213,381 24
" " "	1902	5,386,611 24	5,861,099 54	5,918,990 43
" " "	1903	3,083,680 86	6,474,134 20	6,584,598 77
" " "	1904	2,619,059 86	7,599,958 57	6,627,255 51
" " "	1905	6,125,481 79	8,906,154 35	7,050,892 11
Total		*149,110,393 78	115,971,870 31	104,620,500 22

*Total amount paid on construction	$149,110,393 78
Less amount received from the City of St. John, N.B., as purchase of the Carleton Branch Railway	40,000 00
Total cost of construction	†$149,070,393 78

†Agreeing with amount expended on capital, see page 46.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, October 31, 1905.

STATEMENT showing Miscellaneous Expenditure, yearly, by the Department of Railways and Canals.

Year ending June 30.	CHARGEABLE TO INCOME.			CHARGEABLE TO REVENUE.			Total, Yearly Expenditure
	Canals.	Railways.	General.	Canals.	Railways.	General.	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1868			6,305 66	12,000 00		2,416 66	20,722 32
1869			8,367 52	12,000 00		1,000 00	21,367 52
1870			7,853 03	18,698 89		7,679 78	34,231 70
1871			34,773 72	12,018 98			46,792 70
1872			20,049 50	12,208 76			32,258 26
1873			36,891 74	12,099 44		6,889 20	55,880 38
1874			40,098 84	12,959 25		5,428 98	58,487 07
1875			35,579 24	12,047 43		5,620 17	53,246 84
1876			42,920 10	86 08		5,690 28	48,696 46
1877				51 87	43,639 97		43,691 84
1878	1,860 00			556 00		34,388 59	36,804 59
1879							
1880	2,561 55			323 16			2,884 71
1881	2,338 41			5,535 22			7,873 63
1882				9,826 23			9,826 23
1883	11,781 27			6,978 54			18,759 81
1884	7,486 62	62,256 58		8,305 41			78,048 61
1885	16,725 47	11,003 38		1,210 61			28,939 46
1886	20,323 62	10,383 59		776 30			31,483 51
1887	20,873 21	23,545 34		649 04			45,067 59
1888	34,533 07	22,898 90		5,799 83			63,231 80
1889	10,091 87	16,552 64		5,207 64			31,852 15
1890	16,426 69	50,909 74		49,550 21			116,886 64
1891	16,925 31	16,314 41		56,922 05			90,161 77
1892	6,540 49	19,062 51		65,074 07			90,677 07
1893	8,498 41	4,313 73	28,640 93	63,965 54			105,418 61
1894	4,178 85	4,855 11	15,746 31	60,265 22			85,045 49
1895	10,695 48	13,221 27	19,304 87	60,769 56			103,991 18
1896	10,893 40	6,562 20	25,194 21	70,340 22			112,990 03
1897	2,937 47	5,118 99	25,142 90	62,777 12		597 39	96,573 87
1898	1,719 69	8,327 96	28,042 10	56,284 42	1,400 00		95,774 17
1899	1,318 79	67,005 86	22,085 19	66,850 29			157,260 13
1900	11,873 35	33,496 99	22,802 18	58,836 57			127,009 09
1901	12,267 99	28,658 78	33,986 68	61,938 61			136,852 06
1902	3,658 23	21,752 58	34,138 50	65,770 65			125,319 96
1903	2,491 84	15,570 43	35,398 00	63,175 19			116,635 46
1904	3,730 79	85,353 17	36,262 32	66,067 30			191,413 58
1905	1,498 14	97,507 00	38,660 52	64,515 07			202,180 73
	244,230 01	624,671 16	598,244 06	1,142,440 77	45,039 97	69,711 05	2,724,337 02

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, October 31, 1905.

SESSIONAL PAPER No. 20

RECAPITULATION—RAILWAYS AND CANALS, TO JUNE 30, 1905.

Expenditure.

Chargeable to Capital Account—				
Railways, *see* Statement page 46			$ 148,773,520 88	
Canals " " 28			89,294,758 39	
				$238,068,279 27
Chargeable to Consolidated Fund—				
* Railway Subsidies as per Statement No. 3, page 50			$ 32,617,560 69	
Income Account—				
Intercolonial Railway, *see* page 32		$ 280,000 00		
Add transferred from Capital " 33		296,872 90		
Railways " 48		624,671 16		
Canals " 28		4,013,941 07		
" " 48		244,230 01		
General, Railways and Canals " 48		598,244 06		
			6,057,959 20	
Revenue Account—				
Canals—Operating and maintaining Staff, *see* page 28		$ 9,453,518 45		
Canals—Repairs, *see* page 28		7,488,370 66		
" " 48		1,142,440 77		
Railways—Working Expenses, *see* page 47		115,971,870 31		
" " 48		45,039 97		
General—Railways and Canals " 48		69,711 05		
			134,170,951 21	
				172,846,471 10
Total expenditure on Railways and Canals				$410,914,750 37

EXPENDITURE AS ABOVE SEPARATED AS BETWEEN RAILWAYS AND CANALS.

Railways.

Capital Account	$ 148,773,520 88	
Consolidated Fund	149,836,015 03	
		$ 298,609,535 91

Canals.

Capital Account	$ 89,294,758 39	
Consolidated Fund	22,342,500 96	
		111,637,259 35

General, Common to both.

Consolidated Fund	667,955 11
Total expenditure on Railways and Canals	$ 410,914,750 37

REVENUE, SEPARATED AS BETWEEN RAILWAYS AND CANALS.

Railways—Revenue received from July 1, 1867, to June 30, 1905 (for details *see* page 47)	$ 104,620,500 22
Canals " " " " " 28)	13,405,515 56
Total Revenue, Railways and Canals	$ 118,026,015 78

* This amount does not include the subsidy of $25,000,000 to the Canadian Pacific Railway, nor the amount $660,683.09 expended on the Annapolis and Digby Railway, both of which are included in Capital Account, nor the annual payment of $119,700 to the Provincial Government of Quebec, being interest at the rate of 5 per cent on the sum of $2,394,000 granted by 47 Vic., ch. 8 (1884) for the line between Ottawa and Quebec, which sum was transferred to the Public Debt as a liability, and is dealt with by the Finance Department, *see* Public Accounts, 1898-99, page x.

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, October 31, 1905.

PART II

SKETCH MAPS OF DOMINION RAILWAYS AND CANALS

AND

REPORT OF THE CHIEF ENGINEER

COMPRISING REPORTS OF

GENERAL MANAGER OF GOVERNMENT RAILWAYS AND SUPERINTENDENTS OF CANALS

1904-1905

DEPARTMENT OF RAILWAYS AND CANALS.

LISTS OF ANNUAL REPORTS UNDER THIS COVER.

1. M. J. Butler, Chief Engineer Railways and Canals, General Report.
2. D. Pottinger, General Manager Government Railways, I.C.R.
   W. B. MacKenzie, Chief Engineer, I.C.R.
   T. C. Burpee, Engineer of Maintenance, I.C.R.
   G. R. Joughins, Superintendent of Motive Power, I.C.R.
   T. Williams, Chief Accountant and Treasurer, I.C.R.
3. D. Pottinger, General Manager Government Railways, Windsor Branch.
   T. C. Burpee, Engineer of Maintenance, Windsor Branch.
   T. Williams, Chief Accountant and Treasurer, Windsor Branch.
4. D. Pottinger, General Manager Government Railways, P.E.I. Ry.
   W. B. MacKenzie, Chief Engineer, P.E.I. Ry.
   G. A. Sharp, Superintendent, P.E.I. Ry.
   W. S. Poole, Mechanical Superintendent, P.E.I. Ry.
   W. T. Huggan, Accountant and Auditor, P.E.I. Ry.
5. E. Marceau, Superintending Engineer, Quebec Canals.
6. L. N. Rheaume, St. Lawrence Canals.
7. W. A. Stewart Superintendent of Operation, St. Lawrence Canals.
8. A. J. Grant, Engineer in Charge, Port Colborne Improvements.
9. J. L. Weller, Superintending Engineer, Welland Canal.
10. F. B. Fripp, Engineer in Charge, Sault Ste. Marie.
11. J. C. Boyd, Superintendent, Sault Ste. Marie.
12. R. B. Rogers, Superintendent Engineer, Trent Canal.
13. A. T. Phillips, Superintending Engineer, Rideau Canal.
14. J. H. Devereaux, Lock Master, St. Peters Canal.
15. J. H. McClellan, Superintendent, Trent Canal.
16. E. J. Walsh, Trent Canal Surveys.

CHIEF ENGINEER'S REPORT.

Department of Railways and Canals,
Office of the Chief Engineer,
Ottawa, November 1, 1905.

Sir,—I have the honour to submit my annual report for the fiscal year ended June 30, 1905, covering, however, the works of construction up to October 1, 1905.

In presenting my present report as Chief Engineer of the department, I desire to say that, owing to the recent date of my accession to the position, it has been impossible for me to write with full personal knowledge of the facts. My inspection of the works has necessarily been of a somewhat hurried character, as I have been precluded, by lack of time, from the closer examination into their details that I should wish to make. My observations are, however, supplemented by the attached reports of the various superintending engineers and other officers, who have furnished the data from which my own report is, mainly, compiled.

First.—The annual report of the General Manager of Government Railways, to which are attached the report of the Chief Engineer, the Engineer of Maintenance, the Mechanical Superintendent of the Intercolonial division and the reports of the Superintendent of the Prince Edward Island division, with statements of accounts prepared by the Accountants of these roads.

Second.—The annual reports of the Superintending Engineers of the several canals, and of the Superintendents of the Sault Ste. Marie canal, the St. Peter's canal, Trent and of the St. Lawrence canals. The engineer in charge of the improvements of the upper entrance of the Welland canal and the engineer in charge of the improvements to the entrance to the Sault Ste. Marie canal.

The following shows the length of the government railways in operation on June 30,1905:—

INTERCOLONIAL RAILWAY.

MAIN LINE AND BRANCHES.

	Miles.
Halifax to Truro	61·83
Dartmouth Branch	12·38
Truro to Moncton	124·03
Moncton to St. John	89·36
Point du Chene Branch	11·38
Moncton to Campbellton	185·16
Campbellton to Ste. Flavie	105·09
Indian-Town Branch	13·51

	Miles.
Ste. Flavie to Rivière du Loup	83·28
Rivière Ouelle Branch	6·25
Rivière du Loup to Point Lévis	115·47
Hadlow to Chaudière Curve	5·62
Chaudière to Ste. Rosalie	115·95
St. Charles Junction to Chaudière Junction	16·98
Nicolet Branch	14·61
Dalhousie Branch	7·00
Pictou to Oxford Junction	69·10
Brown's Point to Stellarton	12·23
Junction near New Glasgow to Pictou Landing	7·76
Pugwash Junction to Pugwash	4·70
Truro to Mulgrave	123·07
Point Tupper to Sydney	91·48
North Sydney Branch	4·38
Fredericton to Loggieville	125·00
	1,405·62

LEASED.

Length of main line from Point Lévis to Hadlow	1·50	
Chaudière Curve to Chaudière	1·18	
Ste. Rosalie Junction to Montreal	37·62	
		40·30
		1,445·92

FREIGHT BRANCHES AND Y'S OWNED.

Y's at Windsor Junction, Truro, Brown's Point, Oxford Junction, Painsec Junction, Moncton, Chaudière, Springhill Junction, Stellarton, Mulgrave, Nth. Sydney Junction, Newcastle, Rivière Ouelle, St. Charles Junction, St. Leonard Junction, Ste. Rosalie Junction	3·62
Switch near North Street to D.W.T., Halifax	·85
Halifax Cotton Factory	2·10
Dartmouth Station to end of line	2·29
Stewiacke Wharf Branch	·87
Sydney Station to Wharf	·90
North Sydney Station to Wharf	·78
Switch near Pictou Landing to Coal Wharf	·75
Pictou Station to Wharf	·15
Pictou Station to Copper Crown Smelter	·72
Logan's Tannery Siding	·48
Pugwash Station to Wharf	·07
Sackville Wharf Branch	·47
Dorchester Wharf Branch	1·00

		Miles.
Moncton Wharf Branch	1·00	
Courtney Bay Branch	2·39	
St. John Water Front Extension	·44	
St. John Station to Deep Water Wharf	·28	
Newcastle Wharf Branch	1·75	
Dalhousie Station to Wharf Branch	·40	
Campbellton Wharf Branch	·43	
Rimouski Wharf Branch	2·00	
Trois Pistoles Spur	2·38	
Rivière du Loup Wharf Branch	4·35	
St. Pacome Spur	1·27	
Nicolet Station to Wharf	2·05	
Carmel Branch, Main Line to Village (estimated)	1·05	
Blackville to Indiantown	8·50	
		43·34
		1,489·26

WINDSOR BRANCH.

Windsor Junction to Windsor	32

PRINCE EDWARD ISLAND RAILWAY.

Souris to Tignish	166	
Mount Stewart to Georgetown	24	
Charlottetown to Royalty Junction	5	
Emerald Junction to Cape Traverse	13	
Alberton to Cascumpec Wharf	1	
		209
Total length of government railways		1,730·26

The result of the year's operations of the government railways may be stated as follows:—

Name of Railway.	Mileage in Operation	Amount.	$ cts.	Profit. $ cts.	Loss. $ cts.
Intercolonial Division	1,446	Working expenses	8,508,826 75		
		Earnings	6,783,522 83		
				.....	1,725,303 92
Windsor Branch	32	One-third earnings	50,038 67		
		Maintenance	26,863 16		
				23,175 51	
Prince Edward Island Division	209	Working expenses	370,464 44		
		Earnings	217,330 61		
				.....	153,133 83
Total miles	1,687			23,175 51	1,878,437 75
		Deduct profit from loss		.....	23,175 51
		Net loss			1,855,262 24

The maintenance of the roads and rolling stock has received careful attention, and both roads continue to be in efficient condition; the rolling stock is being brought up to the modern standard.

The working expenses of the Intercolonial Railway given above include the $140,000 rental paid to the Grand Trunk Railway.

The gross earnings of the government railways for the last two years compare as follows:—

	1903-1904	1904-1905
Intercolonial Division	$6,339,231 43	$6,783,522 83
Windsor Branch	53,634 05	50,038 67
Prince Edward Island Division	234,390 03	217,330 61
	$6,627,255 51	$7,050,892 11

Showing an increase in the gross earnings of $423,636.60.

The gross working expenses of the government railways for the last two years compare as follows:—

	1903-1904.	1904-1905.
Intercolonial Division	$7,239,982 04	$8,508,826 75
Windsor Branch	24,281,09	26,863 16
Prince Edward Island Division	335,695 44	370,464 44
Total	$7,599,958 57	$8,906,154 35
Gross working expenses of government railways		$8,906,154 35
Gross earnings of government railways		7,050,892 11
Excess of working expenses, which include rental, $140,000, over earnings		$1,855,262 24

Showing an increase in working expenses for the year, compared with the previous year, of $1,306,195.78, which is made up of the following:—

	1903-1904.	1904-1905.	Difference.	
			Increase.	Decrease.
	$ c.	$ c.	$ c.	$ c.
Locomotive power	2,732,396 72	3,226,195 30	493,798 58	
Car expenses	1,762,273 89	2,096,829 13	334,555 24	
Maintenance of way and works	1,619,780 67	1,885,618 31	265,837 64	
Station expenses	922,528 95	989,698 05	67,179 10	
General charges	533,529 51	551,748 04	18,218 53	
Rental leased lines	140,000 00	140,000 00	Nil.	
	7,712,509 74	8,890,088 83		
Car mileage	−112,551 17	+16,065 52		
Net increase	7,599,958 57	8,906,154 35	1,306,195 78	

INTERCOLONIAL DIVISION.

Comparative Statement of Ocean-borne Passenger Business done at the Port of Halifax during the Winter Seasons of 1903-4 and 1904-5.

Name of Steamer.	1903-1904. No. of Passengers.			Name of Steamer.	1904-1905. No. of Passengers.		
	1st Class.	2nd Class.	Total.		1st Class.	2nd Class.	Total.
Pretorian	61	1,351	1,412	Pretorian	33	613	646
Parisian	101	1,399	1,500	Parisian	61	1,217	1,278
Bavarian	175	2,314	2,689	Bavarian	76	1,882	1,958
Corinthian	29	578	607	Corinthian	35	714	749
Cambroman	Nil.	52	52	Virginian	25	832	857
Siberian	11	556	567	Siberian	8	522	530
Mongolian	Nil.	502	502	Mongolian	8	241	249
Corean	5	165	170	Dania	7	454	461
Assyrian	Nil.	837	837	Albano	Nil.	452	452
Numidian	26	803	829	Numidian	4	114	118
Arcadian	Nil.	1,945	1,945	Victorian	34	881	915
Canada	81	1,314	1,395	Canada	36	1,337	1,373
Carthaginian	22	393	415	Carthaginian	8	539	547
Tunisian	248	2,868	3,116	Tunisian	54	1,390	1,444
Sardinian	Nil.	260	260	Sardinian	5	272	277
Laurentian	24	823	847	Laurentian	8	689	697
Pomeranian	1	372	373	Pomeranian	Nil.	229	229
Lake Champlain	169	825	994				
Ionian	115	1,661	1,776	Ionian	75	1,496	1,571
Dominion	27	731	758	Dominion	23	431	454
Sicilian	20	802	822	Sicilian	25	977	1,002
Pallanza	Nil.	138	138	Pallanza	Nil.	1,012	1,012
Barcelona	Nil.	1,508	1,508	Vancouver	7	360	367
Kensington	Nil.	913	913	Kensington	11	394	405
Buenos Ayrean	Nil.	39	39	Buenos Ayrean	4	457	461
Sarmatian	Nil.	277	277	Sarmatian	2	157	159
Southwark	Nil.	512	512				
Malon	Nil.	191	191				
Total	1,115	24,329	25,444	Total	549	17,662	18,211

* Note.—Of the above 17,237 travelled by the Canadian Pacific Railway, and 2,125 travelled by the Intercolonial Railway.

Of the 18,211 passengers carried by the Intercolonial Railway in 1904-05 as above, 15,817 travelled via St. John by the Canadian Pacific Railway, and 1,500 travelled by the Intercolonial Railway to Montreal.

COMPARATIVE Statement of Ocean-borne Freight Traffic during the Winter Seasons of 1903-4 and 1904-5.

Name of Line of Steamers.	WINTER OF 1903-1904.			Name of Line of Steamers.	WINTER OF 1904-1905.		
	Measurement tons.	Weight tons.	Total tons.		Measurement tons	Weight tons.	Total tons.
Furness-Allan	Nil.	Nil.	Nil.	.....	.....	.....	.....
Allan Line	11,203	4,095	15,298	Allan Line.....	4,736	3,394	8,130
Furness Line.....	4,599	8,754	13,353	Furness Line.....	3,927	5,189	9,116
Canada-Jamaica Steamship Line	.....	40	40	Canadian Pacific..	275	47	322
Pickford and Black	Nil.	Nil.	Nil.	Canada-Jamacia Steamship Line	.....	1,938	1,938
Beaver Line.....	Nil.	Nil.	Nil.	Pickford and Black		13,399	13,399
Red Cross.... ...	....	879	879	Various other lines and Tramp Steamers.....		48,800	48,800
Total	15,802	13,768	29,570	Total.	8,938	72,767	81,705

The above statement shows an increase of 52,135 tons of ocean-borne freight traffic for the winter season of 1904-5 as compared with the winter season of 1903-4.

The following is a statement of the quantity and classes of the rolling stock purchased on capital account during the fiscal year ending June 30, 1905:—

	Engines.	Dining cars.	PASSENGER CAR STOCK.				Conductor's van.	Oil tank cars.	Box, cattle and refrigerator cars.	Platform cars.	Coal cars of 3 several kinds.	Snow ploughs.	Wing ploughs.	Flangers.	Rotary snow ploughs.	Auxiliary cars.	Air Brake Instruction car.
			1st class sleeping and parlour.	1st class.	2nd class sleepers.	2nd class.	Baggage and mail postal.										
	22	2	14	20	4	....	4	....	....	150	.....	.....	...	....	.....	..	.....	.....

The following is a statement of the quantity and classes of rolling stock which have been rebuilt during the year ended June 30, 1905, at the cost of revenue to maintain the work:—

—	Passenger Car Stock.															
	Engines.	1st class sleeping and parlour.	1st class.	2nd class sleepers.	2nd class.	Baggage and express.	Conductor's van.	Box car.	Platform cars.	Refrigerator cars.	Coal cars of three several kinds.	Snow ploughs.	Wing ploughs.	Flangers.	Rotary snow ploughs.	Auxiliary.
Total			4					5	35			4		1		1

The following table shows the working expenses, gross earnings, the tonnage of freight and number of passengers carried each year since July 1, 1876, when the road was first opened as a through line to the west.

Year.	Average Miles in Operation.	Working Expenses.	Gross Earnings.	Profit.	Loss.	Tons of Freight carried.	No. of Passengers carried.
		$ c.	$ c.	$ c.	$ c.		
1876-77	714	1,661,673 55	1,154,445 33		507,228 22	421,327	513,420
1877-78	714	1,816,273 56	1,378,946 78		432,326 78	522,710	518,957
1878-79	714	2,010,183 22	1,294,009 69		716,083 53	510,861	640,101
1879-80	829	1,603,429 71	1,506,298 48		97,131 23	561,924	581,483
1880-81	840	1,759,851 27	1,760,393 92	542 65		725,777	631,245
1881-82	840	2,069,657 48	2,079,262 66	9,605 18		838,956	779,994
1882-83	840	2,360,373 27	2,370,910 10	10,547 83		970,961	878,600
1883-84	887	2,377,433 62	2,384,414 92	6,981 30		1,009,237	944,636
1884-85	941	2,519,751 56	2,441,203 66		78,547 90	989,986	957,228
1885-86	946	2,583,999 67	2,450,093 88		133,905 79	1,023,788	932,880
1886-87	977	2,922,369 62	2,660,116 93		262,252 69	1,143,020	942,784
1887-88	971	3,366,781 74	2,983,336 05		383,445 69	1,288,823	1,040,163
1888-89	971	3,244,647 73	2,967,801 00		276,847 73	1,218,877	1,136,272
1889-90	971	3,560,575 74	3,012,739 87		847,835 87	1,368,819	1,219,233
1890-91	1,094	3,662,341 94	2,977,395 38		684,946 56	1,304,534	1,298,304
1891-92	1,142	3,439,377 00	2,945,441 97		493,935 03	1,264,575	1,297,732
1892-93	*1,142	3,045,317 50	3,065,499 09	20,181 59		1,388,080	1,292,878
1893-94	1,142	2,981,671 98	2,987,510 27	5,838 29		1,342,710	1,301,062
1894-95	1,142	2,936,902 74	2,940,717 95	3,815,21		1,276,816	1,352,667
1895-96	1,142	3,012,827 62	2,957,640 10		55,187 52	1,379,618	1,471,866
1896-97	1,145	2,925,968 67	2,866,028 02		59,940 65	1,296,028	1,501,690
1897-98	1,201	3,327,648 51	3,117,669 85		209,978 66	1,424,576	1,523,444
*1898-99	1,301	3,675,686 21	3,738,331 44	62,645 43		1,750,761	1,603,095
*1899-1900	1,301	4,431,404 69	4,552,071 71	120,667 02		2,151,208	1,791,754
*1900-01	1,301	5,460,422 64	4,972,235 87		488,186 77	2,111,310	2,025,295
*1901-02	1,301	5,574,563 30	5,671,385 91	96,822 61		2,385,816	2,186,226
*1902-03	1,315	6,196,653 19	6,324,323 72	127,670 53		2,790,737	2,404,230
*1903-04	1,321	7,239,982 04	6,339,231 43		900,750 61	2,664,149	2,663,156
*1904-05	1,446	8,508,826 75	6,783,522 83		1,725,303 92	2,782,257	2,810,960

* The working expenses include the rental paid for leased line.

INTERCOLONIAL RAILWAY.

STATEMENT of Earnings from the several sources named from June 30, 1876, to June 30, 1905.

Year.	Miles in operation.	Passenger traffic.	Freight traffic.	Mails and sundries.	Total.
		$ c.	$ c.	$ c.	$ c.
1876-77	714	460,368 15	607,564 99	86,512 21	1,154,443 33
1877-78	714	475,256 82	801,709 82	101,985 07	1,378,946 78
1878-79	714	451,893 29	753,490 85	88,715 55	1,294,009 69
1879-80	829	490,338 66	915,486 50	100,473 32	1,506,298 48
1880-81	840	545,114 48	1,113,872 21	101,407 23	1,760,393 92
1881-82	840	651,296 94	1,303,495 00	124,470 72	2,079,262 66
1882-83	840	741,992 72	1,487,601 98	141,326 40	2,370,910 10
1883-84	887	775,783 77	1,461,390 37	147,240 78	2,384,414 92
1884-85	941	747,585 13	1,542,052 18	151,566 35	2,441,203 66
1885-86	946	765,900 03	1,523,487 72	160,706 13	2,450,093 88
1886-87	977	828,328 28	1,677,971 59	153,817 06	2,660,116 93
1887-88	971	884,448 07	1,932,877 85	166,010 13	2,983,336 05
1888-89	971	906,246 47	1,909,094 44	152,460 09	2,967,801 00
1889-90	971	895,094 53	1,964,646 86	152,998 48	3,012,739 87
1890-91	1,094	962,316 88	1,854,629 88	160,448 62	2,977,395 38
1891-92	1,142	961,427 94	1,803,529 03	180,485 00	2,945,441 97
1892-93	1,142	1,002,912 74	1,868,823 84	194,468 80	3,065,499 09
1893-94	1,142	958,915 13	1,834,126 34	193,762 51	2,987,502 27
1894-95	1,142	963,914 44	1,782,608 54	194,194 97	2,940,717 95
1895-96	1,142	971,426 26	1,788,813 18	197,400 66	2,957,640 10
1896-97	1,145	979,005 57	1,687,050 42	199,972 03	2,866,028 02
1897-98	1,201	1,053,864 64	1,857,740 06	206,065 15	3,117,669 85
1898-99	1,315	1,167,453 16	2,348,096 58	222,781 70	3,738,331 44
1899-00	1,315	1,404,469 87	2,912,790 52	234,811 32	4,552,071 71
1900-01	1,315	1,607,166 79	3,121,006 15	244,062 93	4,972,235 87
1901-02	1,315	1,770,941 13	3,644,513 42	255,931 36	5,671,385 91
1902-03	1,315	1,927,916 97	4,128,255 00	268,151 75	6,324,323 72
1903-04	1,321	2,021,568 40	4,041,122 48	276,540 55	6,339,231 43
1904-05	1,446	2,105,066 75	4,373,178 75	305,277 53	6,783,522 83

SESSIONAL PAPER No. 20

INTERCOLONIAL RAILWAY.

STATEMENT showing the Number of Tons of Local and Through Freight Carried from June 30, 1876, to June 30, 1905.

Year.	Miles in operation.	Local freight.	Through freight.	Total.
1876-7	714	The information for these years was destroyed when the general offices in Moncton were burned.		421,327
1877-8	714			522,710
1878-9	714			510,861
1879-0	829			561,924
1880-1	840			725,777
1881-2	840	571,684	267,272	838,956
1882-3	840	537,025	443,936	970,961
1883-4	887	584,581	424,656	1,009,237
1884-5	941	506,574	483,362	989,936
1885-6	946	580,076	443,712	1,023,788
1886-7	977	633,455	509,565	1,143,020
1887-8	971	727,599	561,224	1,288,823
1888-9	971	624,436	594,441	1,218,877
1889-0	971	756,696	612,123	1,368,819
1890-1	1,094	797,492	507,042	1,304,534
1891-2	1,142	750,783	513,792	1,264,575
1892-3	1,142	1,030,628	357,452	1,388,080
1893-4	1,142	966,114	376,596	1,342,710
1894-5	1,142	901,374	366,442	1,267,816
1895-6	1,142	1,011,229	368,389	1,379,618
1896-7	1,145	927,167	368,859	1,296,028
1897-8	1,201	1,053,569	381,007	1,434,576
1898-9	1,315	1,351,569	399,192	1,750,761
1899-0	1,315	1,713,928	437,280	2,151,208
1900-1	1,315	1,633,671	477,639	2,111,310
1901-2	1,315	1,914,551	471,265	2,385,816
1902-3	1,315	2,239,993	550,744	2,790,737
1903-4	1,321	2,123,261	540,888	2,664,149
1904-5	1,446	2,119,528	662,729	2,782,257

INTERCOLONIAL RAILWAY.

STATEMENT of the Number of Local and Through Passengers carried from June 30, 1876, to June 30, 1905.

Year.	Miles in Operation.	Number of Local Passengers.	Number of Through Passengers.	Total.
1876–7	714	'The information for these		613,420
1877–8	714	years was destroyed		618,957
1878–9	714	when the general offices		640,101
1879–80	829	in Moncton were burned.		581,483
1880–1	840			631,245
1881–2	840	647,534	132,460	779,994
1882–3	840	728,186	150,414	878,600
1883–4	887	784,715	159,921	944,636
1884–5	941	812,028	145,200	957,228
1885–6	946	784,817	148,063	932,880
1886–7	977	814,032	128,752	942,784
1887–8	971	948,324	91,839	1,040,163
1888–9	971	1,050,592	85,680	1,136,272
1889–90	971	1,112,695	91,531	1,219,233
1890–1	1,094	1,203,814	94,490	1,298,304
1891–2	1,142	1,198,649	99,083	1,297,732
1892–3	1,142	1,188,827	104,051	1,292,878
1893–4	1,142	1,216,027	85,035	1,301,062
1894–5	1,142	1,272,284	80,383	1,352,667
1895–6	1,142	1,386,803	85,063	1,471,866
1896–7	1,145	1,416,631	85,059	1,501,690
1897–8	1,201	1,438,590	89,854	1,523,444
1898–9	1,315	1,504,652	98,443	1,603,095
1899–1900	1,315	1,678,858	112,896	1,791,754
1900–1	1,315	1,905,599	119,696	2,025,295
1901–2	1,315	2,061,196	125,030	2,186,226
1902–3	1,315	2,255.013	149,217	2,404,230
1903–4	1,321	2,447,843	215,313	2,663,156
1904–5	1,446	2,589,928	221,032	2,810,960

The following table shows the number of tons of coal carried over the Intercolonial Railway from the Nova Scotia collieries to Ste. Rosalie, Montreal and St. John for points west thereof, and to local stations in each year since the road was opened as a through line:—

Year.	For the West.			To Local Stations.	Total.
	Via Ste. Rosalie.	Via Montreal.	Via St. John.		
1876-77				103,420	103,420
1877-78				97,043	97,043
1878-79		300		112,232	112,532
1879-80		1,097		135,369	136,466
1880-81		6,102	4,022	174,483	184,607
1881-82		18,015	11,779	218,364	248,158
1882-83		12,837	22,206	227,380	262,423
1883-84		22,014	19,534	252,014	293,562
1884-85		133,440	1,773	213,791	349,004
1885-86		171,170	21,150	215,272	407,592
1886-87		192,871	27,536	233,178	453,585
1887-88		183,704	36,228	309,727	529,659
1888-89		160,026	27,923	338,538	526,487
1889-90		164,453	25,126	366,967	556,546
1890-91		113,996	39,213	344,829	498,038
1891-92		35,447	5,918	392,441	433,806
1892-93		136,868	3,775	402,653	543,296
1893-94		102,273	8,028	367,390	478,691
1894-95		67,082	7,865	310,253	385,200
1895-96		53,124	9,681	369,708	432,513
1896-97		38,395	12,305	331,469	382,172
1897-98		9,084	9,796	351,069	369,949
1898-99		4,644	5,399	484,163	494,206
1899-1900		3,495	Nil.	599,714	603,289
1900-01	136	Nil.	Nil.	506,454	506,590
1901-02	1,131	5,763	3,640	546,986	557,520
1902-03	2,200	7,817	6,775	725,727	742,519
1903-04	2,260	637	513	691,346	694,761
1904-05	800	265	5,022	596,290	602,377

It thus appears that the largest tonnage of coal carried over the road for the west was in the year 1886-7, when it reached 220,407 tons, since which the through coal traffic for points west of the Intercolonial Railway has greatly declined.

TABLE showing the number of bushels of grain carried during each year for shipment at Halifax since the road was opened as a through line to the west.

Year.	Bushels.		Total.	Year.	Bushels.		Total.
	Via Chaudière.	Via St John.			Via Chaudière.	Via St. John.	
1876-77				1891-92	845,997	519,500	1,265,497
1877-78				1892-93	155,306	197,669	352,975
1878-79				1893-94	Nil.	8,026	8,026
1879-80				1894-95	Nil.	Nil.	Nil.
1880-81				1895-96	Nil.	Nil.	Nil.
1881-82				1896-97	Nil.	Nil.	Nil.
1882-83	31,011		31,011	1897-98	8,000	Nil.	8,000
1883-84	73,389		73,389	1898-99	30,000	Nil.	30,000
1884-85	300,901		300,901	1899-1900	13,239	Nil.	13,239
1885-86	389,122		389,122	1900-01	147	Nil.	147
1886-87	575,880		575,880	1901-02	Nil.	Nil.	Nil.
1887-88	69,021		69,021	1902-03	Nil.	Nil.	Nil.
1888-89	129,725		129,725	1903-04	147,438	Nil.	147,438
1889-90	502,012		502,012	1904-05	Nil.	Nil.	Nil.
1890-91	148,803	59,534	218,337				

TABLE showing the number of barrels of flour and meal carried during each year since the road was first opened as a through line to the west.

Year.	Barrels.	Year.	Barrels.
1876-77	254,710	1891-92	954,015
1877-78	557,778	1892-93	856,913
1878-79	630,329	1893-94	944,967
1879-80	535,248	1894-95	938,351
1880-81	672,310	1895-96	822,097
1881-82	692,095	1896-97	847,701
1882-83	983,916	1897-98	987,408
1883-84	817,134	1898-99	1,157,250
1884-85	935,977	1899-1900	1,234,076
1885-86	761,127	1900-01	1,292,106
1886-87	763,894	1901-02	1,311,707
1887-88	871,838	1902-03	1,521,540
1888-89	948,514	1903-04	1,607,050
1889-90	1,116,050	1904-05	1,769,480
1890-91	1,013,129		

TABLE showing the number of bushels of grain carried during each year since the road was first opened as a through line to the west.

Year.	Bushels.	Year.	Bushels.
1876-77	292,852	1891-92	3,776,677
1877-78	331,170	1892-93	1,514,619
1878-79	302,921	1893-94	1,304,684
1879-80	534,021	1894-95	1,036,384
1880-81	565,678	1895-96	1,064,385
1881-82	560,253	1896-97	1,093,499
1882-83	1,195,601	1897-98	1,551,372
1883-84	654,673	1898-99	2,595,353
1884-85	734,902	1899-1900	2,720,453
1885-86	849,800	1900-1901	3,535,364
1886-87	1,018,395	1901-02	2,959,761
1887-88	1,219,035	1902-03	3,392,252
1888-89	1,256,158	1903-04	2,788,772
1899-90	2,610,202	1904-05	3,317,910
1890-91	2,890,921		

TABLE showing the quantity of lumber in feet carried during each year over the road since it was first opened for traffic as a through line to the west.

Year.	Feet.	Year.	Feet.
1876-77	50,096,474	1891-92	175,474,340
1877-78	56,626,547	1892-93	181,211,013
1878-79	55,626,696	1893-94	200,507,949
1879-80	55,462,654	1894-95	202,247,269
1880-81	72,841,388	1895-96	226,332,715
1881-82	78,356,418	1896-97	243,355,725
1882-83	104,633,417	1897-98	354,093,816
1883-84	131,120,948	1898-99	306,554,031
1884-85	138,493,675	1899-1900	379,350,074
1885-86	117,186,512	1900-1901	396,858,964
1886-87	161,801,763	1901-02	428,051,029
1887-88	197,755,272	1902-03	459,231,589
1888-89	199,507,777	1903-04	465,379,803
1889-90	210,886,071	1904-05	518,434,310
1890-91	184,188,324		

TABLE showing the number of live stock carried during each year over the road since it was first opened for traffic as a through line to the west.

Year.	Number.	Year.	Number.
1876-77	34,414	1891-92	87,889
1877-78	46,498	1892-93	93,369
1878-79	47,584	1893-94	79,203
1879-80	70,990	1894-95	72,106
1880-81	61,574	1895-96	64,051
1881-82	73,479	1896-97	72,082
1882-83	68,338	1897-98	89,301
1883-84	60,090	1898-99	109,821
1884-85	70,785	1899-1900	92,813
1885-86	74,498	1900-01	95,923
1886-87	82,896	1901-02	98,495
1887-88	98,302	1902-03	127,060
1888-89	85,960	1903-04	113,006
1889-90	80,771	1904-05	110,670
1890-91	95,529		

TABLE showing the number of tons of ocean-borne goods to and from Europe, via the port of Halifax, carried over the road during each year since it was first opened for traffic as a through line.

Year.	Via Ste. Rosalie and from the West.	Via Montreal to and from the West.	Via St. John to and from the West.	To and from local Stations.	Total.
1876-77					
1877-78		14,949		3,405	18,354
1878-79		21,628		2,643	24,271
1879-80		21,073		4,952	26,025
1880-81		15,454		3,334	18,788
1881-82		21,607		4,168	25,775
1882-83		24,875		7,911	32,786
1883-84		19,696		6,533	26,229
1884-85		22,787		8,405	31,192
1885-86		13,464		8,216	21,680
1886-87		16,923		9,811	26,734
1887-88		41,864		8,878	50,742
1888-89		17,340		11,481	28,821
1889-90		9,895		11,730	21,625
1890-91		9,923		10,764	20,687
1891-92		9,719	17	23,835	33,571
1892-93		7,295	100	12,319	19,714
1893-94		3,023	204	13,455	16,682
1894-95		6,749	213	10,399	17,361
1895-96		3,767	314	16,748	20,829
1896-97		2,654	263	17,239	20,156
1897-98		5,950	1,637	18,633	26,220
1898-99		2,465	243	31,555	34,263
1899-1900		2,379	307	37,108	39,794
1900-01	322	6,860	1,142	155,514	163,838
1901-02	1,106	7,780	1,528	172,733	183,147
1902-03	817	11,925	1,194	124,695	138,631
1903-04	2,079	21,377	2,994	146,070	174,520
1904-05	284	15,325	3,687	85,853	105,149

TABLE showing the number of tons of raw and refined sugar carried over the road during each year since it was first opened as a through line.

Year.	Raw Sugar.					Refined Sugar.				
	Via Ste. Rosalie.	To Montreal for the West.	To St. John for the West.	To Local Stations	Total.	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations	Total.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876–77		340			340					
1877–78		186			186					
1878–79		1,041			1,041					
1879–80		12,220			12,220					
1880–81		13,872			13,872		4,022		2,902	6,924
1881–82		14,256		1,290	15,546		7,146		3,607	10,753
1882–83		9,465		508	9,973		11,126		5,497	16,623
1883–84		13,778		3,068	16,846		14,543		7,265	21,808
1884–85		10,381		3,661	14,042		18,024		8,445	26,469
1885–86		4,394		3,998	8,392		7,674		5,858	13,518
1886–87		20,450		8,500	28,950		15,044		8,395	23,439
1887–88		14,320		14,085	28,405		21,641		7,133	28,774
1888–89		24,358		7,160	31,518		12,955		11,120	24,075
1889–90		7,390		8,913	16,303		6,778		6,125	12,903
1890–91		5,088	4,670	8,215	17,973		10,130	468	5,996	16,594
1891–92		7,142	3,960	10,535	21,637		12,633	7,647	12,414	32,721
1892–93		Nil.	Nil.	10,137	10,137		8,327	6,456	7,840	22,623
1893–94		Nil.	Nil.	6,775	6,775		17,729	6,967	8,885	33,581
1894–95		Nil.	Nil.	10,342	10,342		13,351	15,819	4,695	33,865
1895–96		Nil.	Nil.	9,824	9,824		15,138	13,734	11,309	40,181
1896–97		Nil.	Nil.	4,925	4,925		5,694	8,069	6,957	20,720
1897–98		Nil.	Nil.	Nil.	Nil.		6,624	8,821	10,989	26,534
1898–99		Nil.	Nil.	Nil.	Nil.		8,138	2,193	15,833	26,164
1899–1900		96	Nil.	Nil.	96		9,795	257	19,655	29,907
1900–01		489	Nil.	Nil.	489	403	14,791	12	10,615	25,821
1901–02		90	Nil.	11,553	11,643	3,101	6,831	861	18,839	29,632
1902–03		194	Nil.	17,137	17,331	3,183	5,763	1,636	20,529	31,111
1903–04	357	875	Nil.	7,495	8,727	6,013	8,628	879	29,400	44,920
1904–05	602	509	78	1,495	15,684	1,446	7,107	224	22,937	31,764

TABLE showing the number of tons of fresh and salt fish carried over the road during each year since it was opened as a through line.

Year.	Fresh Fish.					Salt Fish.				
	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations.	Total.	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876-77		530	921	527	1,978		551	1,848	802	3,201
1877-78		596	1,015	474	2,085		898	1,644	805	3,347
1878-79		471	1,336	817	2,624		988	1,038	1,048	2,974
1879-80		519	1,362	453	2,334		1,612	2,238	959	4,809
1880-81		498	1,879	920	3,297		2,418	937	1,051	4,406
1881-82		475	1,619	957	3,051		4,031	1,066	2,487	7,584
1882-83		542	384	393	1,319		3,229	759	1,354	5,412
1883-84		838	1,682	412	2,932		1,322	1,143	1,224	3,689
1884-85		1,062	1,885	484	3,431		3,563	3,600	1,596	8,759
1885-86		1,669	1,645	902	4,216		1,680	2,047	3,376	7,103
1886-87		1,278	1,572	2,008	4,858		3,236	569	1,747	5,552
1887-88		1,533	1,477	1,031	4,041		2,617	476	1,099	4,193
1888-89		2,474	2,000	1,870	6,344		3,070	7,746	2,994	13,810
1889-90		2,235	1,787	2,111	6,223		2,449	847	3,288	6,584
1890-91		2,029	2,788	1,848	6,665		1,953	1,917	3,236	7,106
1891-92		1,367	1,746	547	3,660		1,946	928	1,889	4,763
1892-93		1,683	1,875	3,340	6,898		3,262	1,811	2,176	7,249
1893-94		1,959	2,192	2,224	6,375		2,921	1,814	2,962	7,697
1894-95		2,006	3,726	1,160	6,892		2,075	1,849	5,285	10,209
1895-96		1,966	3,059	1,319	6,344		1,863	1,087	2,791	5,741
1896-97		3,307	3,115	1,286	7,708		2,168	1,176	2,536	5,880
1897-98		3,575	3,703	1,052	8,330		1,729	1,066	2,210	5,005
1898-99		1,210	2,070	3,305	6,583		1,651	1,198	3,625	5,474
1899-1900		2,547	2,706	3,686	8,939		2,421	1,563	2,659	6,643
1900-01	37	2,009	3,207	4,125	9,393	360	3,419	1,346	4,643	9,768
1901-02	219	3,013	4,373	5,477	13,082	283	3,150	1,413	5,196	10,042
1902-03	140	2,269	3,040	4,842	10,289	493	2,808	1,615	6,579	11,495
1903-04	539	1,939	3,588	5,002	11,068	225	2,359	564	5,848	8,996
1904-05	779	1,902	3,674	5,516	11,871	433	2,673	272	6,759	10,137

During the year 118·2 miles of 56, 58, 67, 80 and 110 lb. rails were taken up and 93·91 miles of 56, 58, 67, 80 and 110 lb. rails were relaid, 730,451 ties and 250 sets of switches renewed.

Total cost of road and equipment up to June 30, 1905:—

Road, including $1,464,000 paid on account purchasing Drummond County Railway	$61,880,811 12
Rolling stock	15,592,746 61
Total	$77,473,557 73

The work of increased accommodation at the deep water terminus at Halifax is progressing, which facilitates the work of conducting the traffic.

Both the road and rolling stock have been efficiently maintained during the year.

The net results in the operation of this road are not as favourable as those of the year previous. Additions to the rolling stock continue to be made, as being a necessity for the efficient working of the traffic.

WINDSOR BRANCH.

This road continues to be operated by the Dominion Atlantic Railway Company, formerly the Windsor and Annapolis Railway Company, the company receiving two-thirds of the gross earnings for working the traffic, and the government one-third of the gross earnings for maintaining the way and works.

Year.	Miles in operation.	One-third gross earnings.	Proportion of one-third gross earnings credited to line Windsor Junction to Halifax.	Proportion of one-third gross earnings credited to the Windsor Branch.	Maintenance expenses.	Profit.	Loss.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
1880-81..	32	28,434 29	7,217 76	21,216 53	20,502 26	714 27	
1881-82..	32	28,461 07	7,407 88	21,052 19	13,099 55	7,953 64	
1882-83..	32	31,199 77	8,085 88	24,113 89	23,103 93	1,009 96	
1883-84..	32	30,428 39	7,409 46	23,018 93	22,140 86	878 07	
1884-85..	32	32,246 30	7,794 95	24,451 35	18,751 96	5,699 39	
1885-86..	32	31,185 63	7,527 52	23,658 11	19,229 49	4,428 62	
1886-87..	32	33,564 58	8,237 00	25,327 58	26,042 33		714 75
1887-88..	32	32,242 85	6,689 30	24,553 55	24,040 33	513 22	
1888-89..	32	37,313 43	8,941 32	28,372 11	20,856 50	7,515 61	
1889-90..	32	39,544 19	9,381 73	30,162 46	18,982 82	11,179 64	
1890-91..	32	39,519 56	9,284 43	33,508 35	28,931 71	1,303 42	
1891-92..	32	42,891 23	9,382 38	30,235 13	19,514 37	13,994 48	
1892-93..	32	43,901 28	9,585 17	34,316 11	16,889 95	17,426 16	
1893-94..	32	41,834 70	8,859 23	32,975 47	17,645 09	15,330 38	
1894-95..	32	50,703 84	11,626 20	39,077 64	14,640 07	24,437 57	
1895-96..	32	47,456 74	10,894 91	36,561 83	16,476 46	20,985 37	
1896-97..	32	54,208 81	13,605 58	40,603 23	10,821 04	29,782 19	
1897-98..	32	48,892 21	11,665 57	37,226 64	18,181 09	14,045 01	
1898-99..	32	56,314 51	13,840 48	42,474 04	12,873 06	29,600 94	
1899-1900	32	62,266 61	14,925 18	47,351 43	12,891 56	34,459 87	
1900-01..	32	62,523 20	15,261 31	47,261 89	16,862 66	30,399 23	
1901-02	32	65,315 38	15,710 79	49,604 59	16,376 27	33,228 32	
1902-03..	32	56,417 38	13,856 57	42,560 81	17,843 19	24,717 62	
1903-04..	32	72,708 54	19,074 49	53,634 05	24,281 09	29,352 96	
1904 05..	32	66,798 46	16,759 79	50,038 67	26,863 16	23,175 51	

PRINCE EDWARD ISLAND RAILWAY.

CAPITAL ACCOUNT.

The cost of road and rolling stock up to June 30, 1905:—

Road, &c.	$6,135,539 68
Rolling stock.	583,924 12
Total.	$6,719,529 45

The rolling stock provided on capital account consisted of:—

Engines.	Passenger Car Stock.			Official cars.	Box, Cattle and Refrigerator cars.	Platform cars and Coal cars.	Conductors' vans.	Pay car.	Snow ploughs.	Flangers.
	1st class cars.	2nd class cars.	Baggage, smoking and postal.							
27	23	18	5	1	223	147	4	1	9	9
			3		21	21				
			4		3	....				
			12		247	168				

The capital expenditure during the year amounted to $591,412.65, of which was expended on the construction of the Murray Harbour branch railway and on the Hillsboro' bridge $284,284.98.

The following works are being carried on, on capital account:—

1. Bridge over the Hillsboro' river at Charlottetown, of which Mr. M. J. Haney is the contractor for the substructure, which work is well advanced. Total expenditure up to June 30, 1904.	$1,154,084 75
Expenditure from June 30, 1904, to June 30, 1905. . . .	133,153 85
Total expenditure up to June 30, 1905.	$1,287,238 60
2. Murray Harbour branch, of which Mr. Willard Kitchen is the contractor. Total expenditure up to June 30, 1904.	983,671 70
Expended from June 30, 1904, to June 30, 1905. . . .	151,131 13
Total expenditure up to June 30, 1905.	$1,135,802 83

The following table shows the working expenses, the gross and net earnings, the tons of freight and number of persons carried each year since June 30, 1875, when the road was first opened for traffic:—

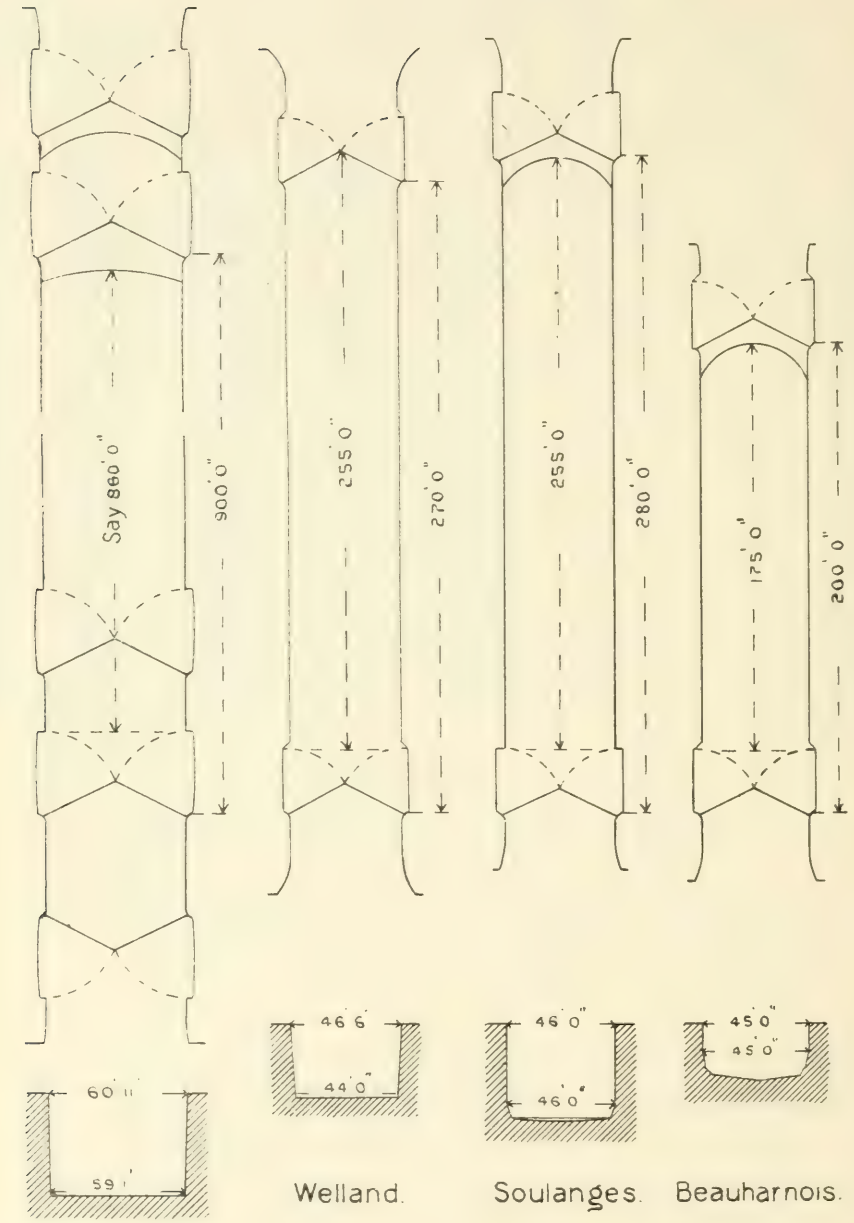
Year.	Miles in operation.	Working expenses.	Gross earnings.	Loss.	Tons of freight carried.	No. of passengers carried.
		$ c.	$ c.	$ c.		
1875-76	199	214,930 43	118,060 96	96,869 47	28,358	93,964
1876-77	199	228,595 25	130,664 92	97,930 33	41,039	93,478
1877-78	199	221,599 49	135,899 60	85,699 89	38,668	111,428
1878-79	199	223,313 12	125,855 99	97,457 21	38,923	105,046
1879-80	199	164,640 55	113,851 11	50,789 44	37,208	90,533
1880-81	199	203,122 88	131,131 43	71,991 45	45,336	102,937
1881-82	199	228,259 97	137,267 54	90,922 43	48,315	118,436
1882-83	199	252,808 41	146,170 42	106,637 99	51,920	117,162
1883-84	199	236,428 13	144,504 12	91,924 01	51,841	118,988
1884-85	211	211,207 01	158,588 06	52,618 95	57,346	130,423
1885-86	211	216,744 34	155,584 36	61,159 98	57,913	120,374
1886-87	211	204,237 37	155,303 37	48,934 00	63,589	103,067
1887-88	211	229,639 95	158,365 62	71,276 33	59,603	131,246
1888-89	211	247,559 44	171,369 56	76,189 89	55,682	152,780
1889-90	211	266,485 85	160,971 78	105,514 07	51,604	133,099
1890-91	211	257,990 08	174,258 05	83,732 03	59,511	145,508
1891-92	211	289,706 38	157,442 69	132,263 69	51,065	139,389
1892-93	211	226,422 17	162,690 42	63,731 75	56,718	132,111
1893-94	211	226,891 06	158,533 83	68,257 23	53,577	123,727
1894-95	211	232,105 19	149,654 71	83,250 41	48,325	125,089
1895-96	211	225,138 56	146,476 54	78,662 02	46,395	122,586
1896-97	211	240,489 90	153,443 13	87,046 77	52,151	121,498
1897-98	211	231,418 74	158,950 61	72,468 13	57,539	126,510
1898-99	211	218,053 01	165,021 03	53,040 98	57,958	129,667
1899-1900	211	220,931 81	174,738 73	46,193 08	62,227	147,471
1900-01	211	261,766 24	193,833 48	67,883 76	73,696	157,793
1901-02	210	270,159 97	197,999 97	72,160 00	75,381	184,748
1902-03	209	259,637 82	217,714 24	41,923 58	80,582	205,265
1903-04	209	335,695 44	234,390 03	101,305 41	86,286	224,517
1904-05	209	370,464 44	217,330 61	153,133 83	73,969	235,194

	Miles.
Steel rails (50 and 56 lb. to yard)	205
Iron rails (40 lb. to yard)	4
Total length of road	209

The road and rolling stock are in good running condition.

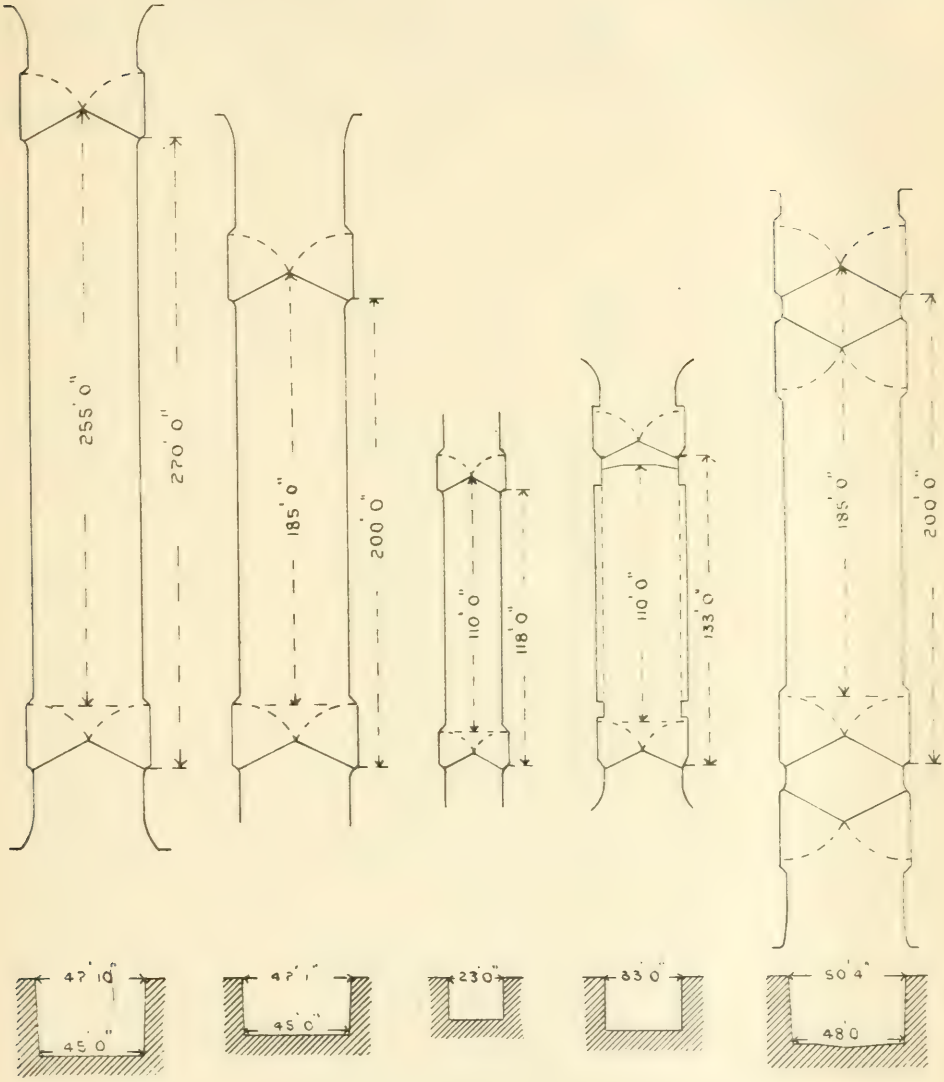
5-6 EDWARD VII., A. 1906

Plans and Sections showing the
on each of the Canadian Canal
Canal which is uncompleted.



There are no locks on the through
Montreal of less dimension than

dimensions of the smallest lock Systems Except the Trent

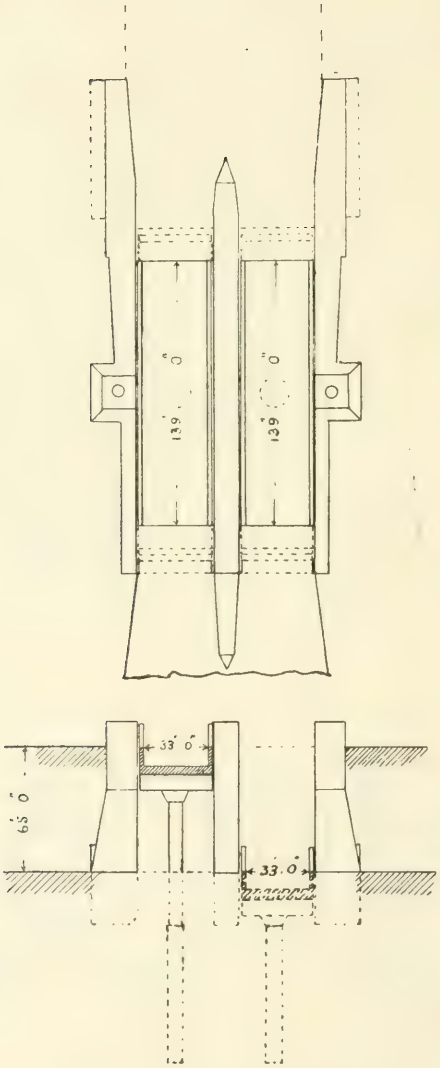


route bewteen Lake Superior and those of the Welland Canal locks.

TRENT CANAL

HYDRAULIC LIFT-LOCK AT PETERBOROUGH

— 65 Feet Lift —



CANALS.

The preceding diagrams of the locks on the Lachine, Soulanges, Welland and Sault Ste. Marie canals practically give the key to the whole navigation between Montreal and Lake Superior. There are no locks to be passed of less dimensions than those of the Welland canal.

The dimensions of the locks of the Beauharnois, Carillon and Grenville, St. Anne, Chambly, St. Ours, Rideau, Trent and St. Peter's are also shown.

CONSTRUCTION.

SOULANGES CANAL.

This canal extends from Coteau Landing to Cascades, a distance of 14 miles. The works of construction of this canal are completed.

Total expenditure up to June 30, 1904..	$6,851,971 77
Expended during the year ended June 30, 1905.. ..	34,202 71
Total expended up to June 30, 1905..	$6,886,174 48
Expended from June 30, 1905, to October 1, 1905.	nil
Total expended up to October 1, 1905..	$6,886,174 48

There yet remains some further payments to be made.

SAULT STE. MARIE CANAL.

This canal is cut through St. Mary's island; it is 1½ miles in length. The depth of water on the mitre sill at low water is 20 feet 4 inches, 22 feet in the prism, 21 feet 5 inches in the lower entrance, with a minimum width of 315 feet. In the upper entrance there is only a depth of 18 feet of water at low water, but the work of deepening to 21 feet 5 inches is in progress. A contract has been recently entered into with Mr. Boone to continue the work of deepening and widening, which, when completed, will give safe passage for vessels approaching and departing from the canal.

It having been found necessary to lengthen the entrance piers at each end of the canal, a contract has been entered into with Mr. Birmingham to extend south lower entrance pier 800 feet. The work is well advanced. For the extension of 800 feet to the south upper entrance pier, a contract has been entered into with O'Boyle Bros. When these works are brought to a finish the construction of the canal may be considered complete, unless, with a view to appearance of neatness and beauty, it is considered desirable to level up the grounds, lay them out in parterres, and plant them with trees and shrubs.

Total expenditure up to June 30, 1904..	$4,313,494 30
Expended from June 30, 1904, to June 30, 1905....	110,181 69
Total expended up to June 30, 1905..	$4,423,675 99
Expenditure from June 30, 1905, to October 1, 1905.	47,004 95
Total expenditure up to October 1, 1905..	$4,470,680 94

TRENT CANAL.

This canal is designed to extend from the waters of Lake Ontario to the Georgian bay on Lake Huron, at the mouth of the Severn river, the total distance being about 200 miles, of which 20 miles are canal and about 180 miles river and lake navigation.

Sections 1 and 2, on the Peterborough-Lakefield division, 9·61 miles, which were constructed by Messrs. Brown, Love & Aylmer and Messrs. Corry & Laverdure respectively, were opened for traffic on July 9, 1904, on which date the hydraulic lift lock at Peterborough was formally put in operation. The lift lock has a lift of 65 feet. It was fully described in the report of last year, 1904.

The only work of construction at present being carried on is in connection with the completion of section No. 3, and the extra work on section 2, Simcoe Balsam lake division, ordered, namely, the construction of a road and bridge along the fourth concession of Eldon and the construction of the steel work of the hydraulic lift lock at Kirkfield.

The contract for the steel for this hydraulic lift lock was awarded to the Dominion Bridge Company of Montreal, on February 15, 1905, and the work under this contract is proceeding. The ram and press sections have been cast and the structural work is well under way.

The contractors have part of the erection plant on the ground and set up.

Balsam-Simcoe Lake Division.

For section No. 1 Mr. Andrew Onderdonk was the contractor. He completed his contract some time ago, but as it is only a section of this division, it is only occasionally used, and has not been formally opened for public traffic. It is about six miles in length.

Section No. 2 is completed with the exception of the extra work in connection with the raising of a road along the fourth concession of the township of Eldon. The concrete of the high level bridge is completed and the work of raising the road is well advanced and will be completed this season.

Section No. 3.—The contract for this section was awarded to Messrs. Brown & Aylmer on September 6, 1900. The work consists of constructing five concrete locks, three dams, three swing bridges, the necessary excavation, dredging, protection lining, culverts, &c., and is well advanced. All the concrete work with the exception of the closures in Nos. 1, 2 and 3 dams and a few other small items is completed. There is yet considerable excavation, both dry and dredging, to be done, also a considerable length of protection lining to lay, but the end of this season or the middle of next season all the work should be completed.

To complete this canal, which is designed to extend from the Georgian bay to the waters of Lake Ontario, there remains to be placed under contract the section from Lake Simcoe to Georgian bay and the work between Heeley's falls and Lake Ontario waters.

The following is a statement of the expenditure made on the construction of this canal from its commencement up to October 1, 1905:—

Expended prior to June 30, 1867	$ 309,371 31
Expended subsequent to June 30, 1867, and June 30, 1894 (date of works contracted for)	782,584 88
Expended from June 30, 1894, to June 30, 1904	3,512,435 81
Total expenditure up to June 30, 1904	$4,624,392 00
Expended from June 30, 1904, to June 30, 1905	333,261 75
Total expenditure up to June 30, 1905	$4,957,653 75
Expended from July 1, to October 1, 1905	98,389 59
Total expenditure to October 1, 1905	$5,056,043 34

ENLARGEMENT.

LACHINE CANAL.

This canal extends from Montreal to Lachine, a distance of 8½ miles. There are 5 lift locks, 270 x 45 feet, with 14 feet of water on the mitre sills, giving a total rise of 45 feet. There was a large amount of work performed in the way of repairs and renewals during the year. The rebuilding of the wall on the south side of basin No. 2 was completed under contract by Messrs. Quinlan & Robertson, and the old timber walls, mitre sills and masonry abutments for the lock gates of the dry dock were entirely rebuilt by the same contractors. There were new plans prepared during the year, providing for the rebuilding of part of the slope walls in concrete. Messrs. Quinlan & Robertson secured the contract and the work was pushed vigorously as soon as the canal was unwatered. The work of dredging the basins, &c., was continued during the year. The total quantity of material excavated was about 22,000 cubic yards. Work on the installation of the electric machinery for the operation of lock gates, &c., was continued during the year. The substructure for a bridge, 205 feet in length and 32 feet in width between the trusses, at Atwater avenue, was completed on June 30, under contract with Messrs. Rogers & Taylor, but the contract for the superstructure had not been awarded at that date.

The total expenditure for original construction from 1843 to 1848		$2,587,532 85
Expenditure in 1869		2,000 00
Total expenditure up to June 30, 1869		$2,589,532 85
Total expenditure for enlargement up to June 30, 1904	$8,773,118 33	
Expended in year ended June 30, 1905	112,460 47	
Total expenditure to June 30, 1905	$8,885,578 80	
Expended from June 30, 1905, to October 1, 1905	8,387 29	
Total expenditure for enlargement to October 1, 1905		$8,893,965 76
Total expenditure for construction and enlargement to October 1, 1905		$11,483,498 61

CORNWALL CANAL.

This canal extends from Cornwall to Dickenson's Landing, a distance of 11 miles. The works of construction performed during the past year consisted in widening and enlarging the regulating weir at old lock No. 17, and in forming a twelve (12) foot channel between the east end of the revetment wall and the upper entrance of old lock No. 17.

FARRAN'S POINT CANAL.

This canal commences at Farran's Point and extends a mile westward. The work of enlargement on this canal is completed.

The total expenditure for construction and enlargement up to June 30, 1904, is	$868,981 58
Expended during year ended June 30, 1905	8,108 99
Total expenditure up to June 30, 1905	$877,090 57
Expended from June 30, 1905, to October 1, 1905	Nil
Total expenditure up to October 1, 1905	$877,090 57

RAPIDE PLAT CANAL.

This canal extends from Morrisburg westward for a distance of $3\frac{3}{4}$ miles. The work of enlargement was completed on January 14, 1905.

Total expenditure up to June 30, 1904	$2,149,377 11
Expended during the year ended June 30, 1905	8,109 98
Total expenditure up to June 30, 1905	$2,157,487 09
Expended from June 30, 1905, to October 1, 1905	Nil
Total expenditure up to October 1, 1905	$2,157,487 09

GALOPS CANAL.

The works of enlargement of both the Iroquois section and the Cardinal section of this canal are completed, and the engineers are preparing the final estimates, the details of which, in order to meet the requirements of the Auditor General's office, are very voluminous.

The work on the upper entrance section, for which Messrs. Murray & Cleveland are the contractors, is drawing to a close, and will it is confidently expected be completed during the current year.

Total expenditure on enlargement up to June 30, 1904	$5,527,586 46
Expended from June 30, 1904, to June 30, 1905	292,337 29
Total expenditure up to June 30, 1905	$5,819,923 75
Expended from June 30, 1905, to October 1, 1905	51,461 25
Total expenditure up to October 1, 1905	$5,871,385 00

WELLAND CANAL.

The trunk line extends from Port Dalhousie on Lake Ontario to Port Colborne on Lake Erie, a distance of 26¾ miles.

IMPROVEMENTS AT PORT COLBORNE.

Messrs. Hogan & McDonnell are the contractors for this work. The condition of the works may be described as follows:—

North of the lighthouse on the end of the west pier, the work of improving the entrance channel and canal basin is well advanced towards completion. About 90 per cent of the rock along the west pier is drilled and blasted and 50 per cent of it dredged. In the canal basin the excavation is finished except cleaning up the bottom, and the docking along the sides is completed except about 400 lineal feet of concrete superstructure on top of the cribs. South of the lighthouse on the end of the west pier, the deepening of the approach from the lake to the canal to 22 feet, which necessitates the removal of about 220,000 cubic yards of material, is progressing satisfactorily. The material removed is chiefly rock, of which 70 per cent has been dredged, 60 per cent of the balance is drilled and blasted. The crib-work and concrete superstructure forming the two elevator docks are completed with the exception of an opening 65 feet long temporarily left open in dock No. 1 to admit scow loads of filling entering. There are yet about 30,000 cubic yards of filling to deposit in dock No. 1. On completion of the elevator foundation in dock No. 2, about 44,000 cubic yards of filling will be required to finish the dock

Total expenditure up to June 30, 1904	$718,451 60
Expended from June 30, 1904, to June 30, 1905	239,488 12
Total expenditure up to June 30, 1905	$957,939 72
Expended from June 30, 1905, to October 1, 1905	26,581 58
Total expended up to October 1, 1905	$984,521 30

REMOVAL OF OBSTRUCTIONS AND IMPROVEMENTS.

The obstructions referred to are the pivot piers of the bridges in the centre of the canal. It is proposed each year, to tear down two or three of the old bridges and build new structures spanning the entire channel, until all the bridges have been rebuilt.

During the year four of these bridges have been replaced with modern structures, giving a clear channel 100 feet in width.

At Allanburg the new bridge takes the place of the two bridges formerly in use, one across the new canal and one across the old canal.

The old bridge at Marlatt's Crossing has been replaced by a long span bridge. The substructures of both these bridges were built under contract by Mr. Joseph Battle, and the superstructures by the Dominion Bridge Company of Montreal.

The old Grand Trunk Railway bridge across the canal, between locks 24 and 25, has been replaced by an imposing structure of long span, built by the Canadian Bridge Company of Walkerville, the superstructure having been built during the winter by Mr. Joseph Battle.

Messrs. Rowan & Elliott, under contract built the substructure of the Niagara street bridge during the winter, and the superstructure was built and erected by the Hamilton Bridge Company.

Other improvements of various kinds have been carried out.

Total expenditure up to June 30, 1904	$302,496 83
Expended from June 30, 1904, to June 30, 1905	285,000 00
Total expenditure up to June 30, 1905	$587,496 83
Expended from June 30, 1905, to October 1, 1905	40,915 80
Total expenditure up to October 1, 1905	$628,412 63

DEEPENING PORTIONS OF LONG LEVEL.

This work is being executed by Messrs. Magann & Phinn, contractors. They have completed the work betwen Allanburg and Welland, and are now working between Welland and Humberstone, and have almost completed their contract.

Total expenditure up to June 30, 1904	$185,288 76
Expended from June 30, 1904, to June 30, 1905	202,000 00
Total expenditure up to June 30, 1905	387,288 76
Expended from June 30, 1905, to October 1, 1905	37,081 05
Total expenditure up to October 1, 1905	$424,369 81

DEEPENING ROCK CUT AT RAMEY'S BEND.

This submarine rock work has been completed by the contractors, Messrs Weddell, Battle & Manley.

	Construction.	Enlargement.
Total expenditure up to June 30, 1904	$7,693,824 03	$17,496,084 28
Expended from June 30, 1904, to June 30, 1905		890,457 82
Total expenditure up to June 30, 1905		$18,386,542 10
Expended from June 30, 1905, to October 1, 1905		147,920 50
Total expenditure up to October 1, 1905		$18,534,462 60

ST. LAWRENCE RIVER AND LAKE IMPROVEMENTS.

GALOPS RAPIDS CHANNEL.

This work is being executed by the contractors, the Gilbert Blasting and Dredging Company.

Total expenditure up to June 30, 1904	$ 909,891 85
Expended from June 30, 1904, to June 30, 1905	49,734 70
Total expenditure up to June 30, 1905	$ 959,626 55
Expended from June 30, 1905, to October 1, 1905	51,461 25
Total expenditure up to October 1, 1905	$1,011,087 80

NORTH CHANNEL.

This channel is about 2⅔ miles in length, 300 feet wide, with 16 feet of water at low water.

It commences about one mile west of the upper entrance to the Galops canal, and runs in a direct line to deep water off Chimney Point.

The work also comprises the building of a dam from Adam's island to Galops (Ogden) island. These works are being executed by the contractor, Mr. M. A. Cleveland, and it is expected that they will nearly all be completed by June 30, 1906.

Total expenditure up to June 30, 1904..	$1,363,535 85
Expended from June 30, 1904, to June 30, 1905.. ..	93,025 89
Total expenditure up to June 30, 1905..	$1,456,561 74
Expended from June 30, 1905, to October 1, 1905..	20,326 25
Total expenditure up to October 1, 1905..	$1,476,887 99

ST. LAWRENCE RIVER AND CANALS.

REDUCING SHOALS WEST OF CORNWALL CANAL.

The contemplated improvement of the river channel west of the upper entrance of the Cornwall canal was accomplished during the season.

A contract was entered into with the W. J. Poupore Company, Limited, in October, 1904, for the removal of five shoals above lock 21, viz:—

Wagner's Island shoal.
Dawson's Point.
Archibald's Point.
Markell's Point.
Maxwell's shoal.

The removal of these shoals to a depth of 17½ feet of water, has materially improved the channel. It has changed the direction of the current, which, instead of flowing in the direction of the Long Sault as heretofore, has taken a direct course towards the entrance of the canal, a deviation which greatly advantages the navigation of the channel.

Total expenditure on river reaches to June 30, 1904..	$458,086 69
Expenditure June 30, 1904, to June 30, 1905..	25,743 51
Total expenditure to June 30, 1905..	$483,830 20
Expended from June 30, 1905, to October 1, 1905..	1,219 54
Total expenditure to October 1, 1905..	$485,049 74

SUMMARY.

To summarize, I may state the cost of construction and enlargements of the canals and improvements to the river and lakes up to June 30, 1905, to be as follows, viz.:—

Route from Montreal to Port Arthur.

—	Original Construction of Canals.	Enlargement of Canals.	Improvement to St. Lawrence River and Lakes.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.
Lachine Canal	2,589,532 85	8,885,578 80		11,475,111 65
Lake St. Louis			298,176 11	298,176 11
Soulanges Canal	6,886,174 48			6,886,174 48
Lake St. Francis			75,906 71	75,906 71
Cornwall Canal	1,945,624 73	5,235,562 85		7,181,187 58
Williamsburg Canals	1,320,655 54	10,676 26		
Farran's Point Canal		877,090 57		
Rapide Plat Canal		2,157,487 09		10,185,853 21
Galops Canal		5,819,923 75		
Galops Rapids			959,626 55	959,626 55
River Reaches			711,238 93	711,238 93
North Channel			1,456,561 74	1,456,561 74
Murray Canal	1,248,820 26			1,248,820 26
Welland Canal	7,093,824 03	18,386,542 10		26,080,366 13
Sault Ste. Marie Canal	4,423,675 99			4,423,675 99
Total	26,108,307 89	41,372,881 42	3,501,510 04	70,982,699 34

If to the above total there is added the cost of the Beauharnois canal—$1,636,690.26, now not required for navigation—the total expenditure is $72,619,389.60.

Route from Lachine to Ottawa.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
St. Anne's Lock	134,456 51	1,035,759 12	1,170,215 63
Carillon and Grenville Canals	63,053 64	4,119,039 32	4,182,092 96
Total	197,510 15	5,154,798 44	5,352,308 59

Construction by the Imperial Government is not included. Records relating to same were kept in Ordnance Office, Montreal, and were destroyed by fire in 1852.

Route from Ottawa to Kingston.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Rideau Canal	4,085,889 21		4,085,889 21
Tay Canal	489,599 23		489,599 23
Total	4,575,488 44		8,575,488 44

Route from St. John, P.Q., to Sorel.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Chambly Canal	637,056 76	.....	637,056 76
St. Ours Lock	121,537 65	.....	121,537 65
Total	758,594 41	.....	758,594 41

Route from Lake Ontario to Georgian Bay.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Trent Canal	4,957,653 75	.....	4,957,653 75
Total	4,957,653 75	.....	4,957,653 75

Route from Atlantic Ocean to Bras D'Or Lakes.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
St. Peter's Canal—Cape Breton	248,762 84	399,784 30	648,547 14
Total	248,762 84	399,784 30	648,547 14

The Culbute canal has been abandoned and the Beauharnois canal is no longer required for navigation purposes, but has to be maintained as a power canal.

The construction of these two canals cost:—

Culbute canal	$ 382,776 46
Beauharnois canal	1,636,690 26
Total	$2,019,466 72

MAINTENANCE AND OPERATION.

LACHINE CANAL.

Operation.

No interruption occurred to the traffic through this canal during the season of 1904.

Maintenance.

A very large amount of work was performed towards maintaining the canal in good order during the year.

The cost of repairs made during the year ended June 30, 1905, is as follows:—

Ordinary repairs under head of staff and repairs		$65,202 42
Special repairs under head of income—		
Rebuilding old locks 1 and 2	$43,267 22	
Underpinning wall basin 2	17,000 00	
Lock gates	14,734 79	
Widen road at lower basin	46,945 17	
Complete paving of Mill street	5,728 29	
Underpinning walls along side basins	2,069 38	
Widening tail race, Côte St. Paul	514 60	
Raising shed No. 1, St. Gabriel basin	1,999 86	
Improvements to flume, power house	2,737 06	
Reconstruction of Tate's dry dock	10,000 00	
		$144,996 37
Total		$210,198 79

SOULANGES CANAL.

Operation.

The operation of this canal was conducted without interruption during the season of 1904. The cost of repairs made during the year ended June 30, 1905, is as follows:—

Ordinary repairs under head of staff and repairs		$21,174 84
Special repairs under head of income—		
Arms for gates and heaters	$ 390 45	
Repairs to banks	21,633 40	
Water wheels, governors and heaters	1,181 46	
Widening and deepening St. Amour's gully	3,997 83	
Widening and deepening Bissonnette's gully	3,203 11	
		30,406 25
Total		$51,581 09

CORNWALL CANAL.

Operation.

No interruption occurred to the traffic through this canal during the season of 1904.

The canal is well lighted by electricity, and the lock gates, valves, weirs and bridges have continued to be operated most successfully by electrical power.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs		$28,100 67
Special repairs under head of income—		
Strengthening and protecting north bank	1,835 84	
Purchase and fitting up concrete apparatus	6,488 99	
Total		$36,425 50

WILLIAMSBURG CANALS.

Operation.

No interruption occurred to the traffic through these canals during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs	$21,492 46

WELLAND CANAL.

Operation.

Two serious accidents occurred on this canal during the year. On October 7, 1904, the steamer 'Hiawatha' bound up, carried away the upper gates of lock No. 1, causing a delay to navigation of 21 hours. The damage was repaired at a cost of $1,023.56, which was paid by the steamer.

On May 17, 1905, the steamer 'Cuba,' bound up, carried away three gates in lock No. 21, causing a delay to navigation of 24 hours. The estimated cost of making good the damage was $4,500, which was duly secured by a cash deposit by the owners of the vessel. The removal of the pivot piers from the centre of the canal, which is being done by degrees, is a great benefit to navigation, and is much appreciated by the transportation companies using the canal.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staffs and repairs		$111,418 62
Special repairs under head of income—		
Stone protection banks of new canal	$ 8,912 65	
Changing valves and hanging gear of new canal lock gates	15,457 36	
Remodelling gate yard and repair shops at Port Dalhousie	2,982 12	
Extend culvert, Welland	3,978 75	
Stephen Vanderburg, lost time	228 66	
Repairing foundations of Port Maitland lock	2,999 88	
		34,559 42
Total		$145,978 04

SAULT STE MARIE CANAL.

Operation.

No interruption to navigation occurred in this canal during the season.

During the season of 1904, there were 3,659 lockages, passing 4,766 registered craft and 274 unregistered vessels and scows, with a total tonnage of 5,878,459 tons, of this total tonnage 1,753,146 tons was of Canadian vessels, being an increase in this class of tonnage of 335,079 tons.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs..	$14,776 33

CHAMBLY CANAL.

Operation.

The operation of this canal was conducted without interruption during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under head of staff and repairs....		$19,896 57
Special repairs under the head of income—		
Build landing wharf at St. John's..	$5,206 16	
Macadamizing tow path..	9,074 70	
Extend and repair wall at head Ste. Thèrése Island..	2,000 00	
Macadamizing road west side of canal.. ..	4,000 00	
Macadamizing 2¼ miles of road..	287 33	
Rebuilding culvert at Denault's farm.. ..	9,998 74	
Culvert, Ste. Thèrése Island..	2,499 57	
		33,066 50
Total..		$52,963 07

ST. OURS LOCK AND DAM.

Operation.

There was no interruption to navigation on this canal during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, was as follows:—

Ordinary repairs under the head of staff and repairs..	$ 1,716 35

Special repairs under head of income—		
Constructing new gates	$5,036 74	
Renewing landing wharf	6,757 32	
Renewing old piers and cleaning upper entrance	1,077 12	
Renewing old piers and cleaning lower entrance	2,029 72	
		14,900 90
Total		$16,617 25

STE. ANNE'S LOCK.

Operation.

There was no interruption to navigation on this lock during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs	$6,091 44

CARILLON AND GRENVILLE CANALS.

Operation.

There was no interruption to navigation on these canals during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staffs and repairs		$19,977 19
Special repairs under head of income—		
Guide piers		1,017 00
Electric lighting		509 98
Rebuilding Grenville wharf		7,188 48
Total		$28,692 65

BEAUHARNOIS CANAL.

Operation.

This canal is only being used by a few market boats and barges. The staff has been reduced to one man at each lock and isolated bridge, and three men in charge of ferries.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under head of staff and repairs	$10,499 99
Special repairs under head of income—	
Rebuilding weir at Valleyfield	14,949 83
Total	$25,449 82

MURRAY CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs	$4,452 68
Special repairs under head of income—	
Complete wire fencing	740 45
Total	$5,193 13

RIDEAU CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs		$49,790 55
Special repairs under head of income—		
Bridge at Smith's Falls	$4,632 75	
Dam at Poonamalie	9,880 60	
		14,513 35
Total		$64,303 90

TRENT CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs..		$26,056 78
Special repairs under the head of income:—		
Complete west entrance pier, Peterboro'..	$1,441 04	
Complete west entrance pier, Burleigh.. ..	1,425 39	
Blasting and dredging, Lakefield..	2,621 72	
Dredging at Katchawannoe lake..	3,133 77	
Dredging engine, boiler and steel boom..	258 25	
Building three dump scows..	2,494 75	
Purchase two steam drills..	494 37	
Hoisting engine and boiler..	1,500 00	
Rebuilding dam at Peterboro'..	12,991 20	
Geo. Matthews & Co., damages..	600 00	
Lower floor of sill of lock, Peterboro'.. ..	9,892 79	
		36,853 28
Total..		$62,910 06

ST. PETER'S CANAL.

Operation.

There was no interruption to navigation on this canal for the season of 1904.

Maintenance.

The cost of repairs during the year ended June 30, 1905, is as follows:—

Ordinary repairs under the head of staff and repairs.. ..		$1,095 90
Special repairs under the head of income:—		
Dredging..		3,000,10
Total..		4,096 00

CULBUTE CANAL.

This canal has been abandoned for navigation purposes.

Summary.

Cost of maintenance and operation of the canal system for the year ended June 30, 1905..	$1,250,612 89
Net revenue of canals after deducting refunds.. ..	78,009 21
Excess of cost of maintenance and operation over revenue..	$1,172,603 68

TABLE showing the dates of opening and closing of the canals for the season of 1904.

Name of Canal.	Navigation opened 1905.	Navigation closed 1904.
Lachine	May 1	December 1
Soulanges	" 1	
Cornwall	" 1	December 10
Farran's Point	" 1	" 10
Rapide Plat	" 1	" 10
Galops	" 1	" 10
Murray	April 18	" 8
Welland	" 24	" 17
Sault Ste. Marie	" 10	" 26
Grenville	May 1	November 30
Carillon	" 1	" 30
Ste. Anne's	April 16	" 30
Chambly	May 1	" 30
St. Ours	April 15	" 30
Rideau—At Ottawa	May 1	" 26
Rideau—At Kingston	" 1	" 24
Trent	April 10	December 26
Beauharnois	July 3	November 30
St. Peter's	May 2	December 23

CANAL STATISTICS.

These statistics are for the season of 1904, they have, as usual, been prepared by Mr. R. Devlin, the officer in charge of the canal statistics office.

TABLE showing the tons of freight passing through each canal, the number of trips of vessels passing through each canal for the season ended December, 1904.

Name of Canal.	Tons of Freight passed through.	No Tolls charged.	No. of Trip of Vessels passing through.
Welland	811,371		1,433
St. Lawrence	1,427,316		8,678
Chambly	448,187		3,475
Ottawa	335,993		1,805
Rideau	55,120		4,042
St. Peter's	73,416		1,654
Trent	45,689		2,287
Murray	28,439		768
Sault Ste. Marie	5,030,705		3,962

GENERAL REMARKS.

For details as regards the subjects treated in this report, I refer you to the reports of the officers in charge of the government railways and canals, which form appendices hereto.

RAILWAY SUBSIDIES.

The subsidies voted for railways, as stated in previous annual reports, are in such a form that it is not possible to show the amount of cash subsidy granted, as the amount of subsidy will, in many cases, be based upon the cost of each road. For

this reason it is not possible to give the amount of each subsidy available; but, the amount paid will be shown in the statements in Parts 1 and 2, also the number of miles of railway for which subsidy is granted per mile, which was available, and the number of miles of railway built up to July 1, 1905, for which cash subsidy per mile was granted. There will also be found the amount of subsidy per annum paid up to July 1, 1905, with the number of miles built.

CANAL STATISTICS.

These statistics are for the season of 1904. They have been prepared by Mr. R. Devlin, the officer in charge of the canal statistics.

COMPARATIVE Statement, for seasons of 1904 and 1903, showing the amounts that would have been collected had not the canals been made free.

Name of Canal.	Season of 1904.	Season of 1903.
	$ cts.	$ cts.
Welland Canal	117,562 01	136,842 89
St. Lawrence Canals	111,726 25	123,189 47
Chambly Canal	27,451 87	24,759 24
Ottawa Canal	22,244 72	29,439 21
Rideau Canal	4,804 98	4,999 77
St. Peter's Canal	2,745 75	3,293 34
Trent Canal	1,333 15	1,508 07
Murray Canal	1,097 82	1,134 98
Sault Ste. Marie Canal	No tolls.	No tolls.
Total	288,966 55	325,166 97

COMPARATIVE Statement of Tons of freight which passed through the canals in seasons of 1904 and also of 1903.

Name of Canal.	Season of 1904.	Season of 1903.	Number of trips of vessels passing through.	
			Season of 1904.	Season of 1903.
Welland Canal	811,371	1,002,919	1,433	1,787
St. Lawrence Canals	1,427,316	1,681,206	8,678	9,698
Chambly Canal	448,187	346,571	3,475	3,445
Ottawa Canal	335,993	436,473	1,805	2,094
Rideau Canal	55,120	61,120	4,042	3,966
St. Peter's Canal	73,416	90,864	1,654	1,760
Trent Canal	45,689	42,407	2,287	2,599
Murray Canal	28,439	30,389	768	762
Sault Ste. Marie Canal	5,030,705	5,511,868	3,962	4,351
Total tons	8,256,236	9,203,817	28,104	30,462

GENERAL REMARKS.

For details as regards the subjects treated in this report, I refer you to the reports of the officers in charge of the government railways and canals, which form appendices hereto.

SESSIONAL PAPER No. 20

SUMMARY of Tables of Steam Railways for the years ended June 30, 1904, and June 30, 1905.

	June 30, 1904, Steam Railways only.	June 30, 1905, Steam Railways only.
Miles of railway completed (track lald)	19,611	20,601
" sidings	3,327	3,632
" iron rails in main line	66	68
" steel rails	19,545	20,533
" " (double track)	763	838
Capital paid (including the 4 following items)	1,186,546,918	1,248,666,414
Government (Dominion and Provincial) bonuses paid	195,805,982	208,208,070
" " " loans paid	20,613,214	20,613,489
" (Provincial only) subscriptions to shares paid	300,000	300,000
Municipal aid paid	17,157,810	17,198,211
Miles in operation	19,431	20,487
Gross earnings	100,219,436	106,467,199
Working expenses	74,563,162	79,977,574
Net earnings	25,656,274	26,489,625
Passengers carried	23,640,765	25,288,723
Freight carried (tons)	48,097,519	50,893,957
Train mileage	61,312,002	65,934,114
Passengers killed	25	35
Number of elevators	276	281
" highway crossings at rail-level, with watchman	239	222
" " " without watchman	13,493	13,746
" overhead bridges, highway crossings over railway	463	472
" highway crossings under railway	333	329
" level crossings of other railways	272	295
" junction with other railways	381	390
" " branch lines	224	234
" engines owned	2,640	2,808
" " hired	128	98
" sleeping cars owned	156	169
" " hired	15	25
" parlor cars owned	44	41
" " hired	6	4
" dining cars owned	37	58
" " hired	5	5
" official cars owned	69	64
" first class cars owned	1,153	1,195
" " hired	78	90
" second class and immigrant cars owned	583	680
" " " hired	12	3
" baggage, mail and express cars owned	839	784
" " " hired	21	12
" refrigerator cars owned	1,297	1,455
" " hired	268	56
" cattle and box freight cars owned	51,951	55,060
" " " hired	2,926	2,169
" platform cars owned	18,254	18,348
" " hired	390	321
" coal cars owned	8,172	8,552
" " hired	304	235
" conductors' vans owned	1,229	1,363
" " hired	19	15
" tool cars owned	823	802
" " hired	5	4
" snow ploughs owned	300	319
" " hired	4	.....
" flangers owned	*354	202
" " hired	2	.....
" other rolling stock	*1,421	*2,126
Included in the above there are the following :—		
Number of cars with air brakes owned	71,795	75,429
" " " hired	3,478	2,749
" " with automatic couplers owned	76,816	82,122
" " " " hired	3,769	3,259

* Includes steam cranes, steam shovels, derricks, boarding cars, pile drivers, &c.

NOTE—In the case of four companies, viz. ; Bruce Mines and Algoma, Lotbinière and Mégantic, New Brunswick Coal and Railway Co. and Quebec Southern, who have made no returns, the foregoing figures are for those of last return, the first two for 1904, and the last for 1903.

SUMMARY of Tables of Electric Railways for the years ended June 30, 1904, and June 30, 1905.

	Comparative Statement.	
	June 30, 1904.	June 30, 1905.
Miles of railway completed (track laid)	767	793
" sidings	33	35
" iron rails in main line	22	25
" steel "	745	768
" " " double track	188	186
Capital paid (including the 3 following items)	50,399,188	61,033,321
Government (Dominion and Provincial) bonuses paid	60,800	60,800
Municipal aid paid	173,000	173,000
Miles in operation	767	793
Gross earnings	8,453,609	9,357,125
Working expenses	5,326,517	5,918,194
Net earnings	3,127,092	3,438,931
Passengers carried	181,689,998	203,467,317
Freight carried (tons)	400,161	510,350
Car mileage	42,066,124	45,959,101
Passengers killed	10	30
Number of highway crossings at rail-level with watchman	10	10
" " " without watchman	286	273
" overhead bridges highway crossings over railway	17	26
" highway crossings under railway	9	9
" farm crossings under railway	Nil.	2
" level crossings of other railways	102	117
" junctions with "	42	46
" " branch llnes	7	11
" power houses (steam power) owned	30	38
" " " hired		
" " (water power) owned	9	10
" " " hired	3	3
" passenger cars (motor) owned	2,137	2,278
" " " hired		
" " (trailers) owned	223	260
" official cars owned	1	3
" locomotives owned	2	12
" baggage, mail and express cars owned	13	13
" cattle and box freight cars owned	‡15	14
" platform cars owned	*77	66
" tool cars owned	13	15
" snow ploughs owned	‡79	39
" snow sweepers owned	33	77
" other rolling stock owned		**21

† Includes one conductors' van. * Includes two coal cars. ‡ Includes snow sweepers.
** Includes two conductors' vans, three coal and dump cars, sixteen refrigerator cars.
NOTE—In the case of the St. Thomas Electric Railway, no return has been made.

RAILWAYS

DISTANCES OF THROUGH RAILWAY ROUTES

FROM THE

ATLANTIC TO THE PACIFIC

LENGTHS OF THE GOVERNMENT RAILWAYS

CANALS

LENGTHS AND LOCATIONS OF THE DOMINION CANALS AND THE INTERMEDIATE WATERS

WITH THE

DIMENSIONS OF LOCKS

MAPS

RAILWAYS.

The following shows the several routes of railway giving through communication between the Atlantic and Pacific coasts:—

The routes available between Halifax and Montreal are four in number, in all of which the Intercolonial is used, either in whole or in part, as follows:—

Halifax to Montreal.

	Miles.
1. Intercolonial Railway, via Lévis, to Montreal	837
2. Intercolonial Railway to St. John	275
Canadian Pacific Railway, from St. John to Montreal	480
Total	755
3. Intercolonial Railway to St. John	275
Canadian Pacific Railway, from St. John to Vanceboro'.	90
Main Central Railway, from Vanceboro' to Danville Junction	224
Grand Trunk Railway, from Danville Junction to Montreal	270
Total	859
4. Intercolonial Railway to St. John	275
Canadian Pacific Railway from St. John to Edmundston.	170
Temiscouata Railway, from Edmundston to Rivière du Loup	81
Intercolonial Railway, from Rivière du Loup to Montreal	278
Total	804

St. John to Montreal.

1. Intercolonial Railway, via Lévis, to Montreal	740
2. Canadian Pacific Railway to Montreal	480
3. Canadian Pacific Railway to Edmundston	170
Temiscouata Railway, from Edmundston to Rivière du Loup	81
Intercolonial Railway, from Rivière du Loup to Montreal	278
Total	529

MONTREAL, OR QUEBEC, TO THE PACIFIC OCEAN.

Montreal to Vancouver.

	Miles.
1. Canadian Pacific Railway to Vancouver	2,906
Canadian Pacific Railway from North Bay to Vancouver	2,546
2. Grand Trunk Railway to North Bay	560
Total	3,102

Quebec to Vancouver.

	Miles.
1. Canadian Pacific Railway to Vancouver	3,052
2. Intercolonial Railway to Montreal	162
Canadian Pacific Railway from Montreal to Vancouver	2,906
Total	3,068
3. Grand Trunk Railway to Montreal	172
Canadian Pacific Railway from Montreal to Vancouver	2,906
Total	3,078
4. Grand Trunk Railway to North Bay	732
Canadian Pacific Railway from North Bay to Vancouver	2,542
Total	3,274

The Canadian Pacific Railway was opened for through traffic on June 28, 1886.

INTERCOLONIAL RAILWAY.

The Intercolonial Railway touches six Atlantic ocean ports, namely, Point du Chene, Pictou, Halifax, St. John, Sydney and North Sydney, as well as the ports of Quebec and Montreal on the River St. Lawrence.

The total length of the road operated during the year ended June 30, 1905, was 1445·92 miles, and for freight branches 12·50 miles, making a total of 1457·42 miles.

The following are the through distances:—

	Miles.
Halifax to Montreal, via Lévis	837
St. John to Montreal, via Lévis	740
Sydney to Montreal, via Lévis	990
North Sydney to Montreal, via Lévis	983

Freight carried direct via St. Henri to Montreal, which would reduce each of the above distances by 3 miles.

WINDSOR BRANCH.

This road extends from Windsor Junction, on the Intercolonial Railway, to Windsor, a distance of 32 miles.

PRINCE EDWARD ISLAND RAILWAY.

LENGTH OF LINE.

	Miles.
Souris to Tignish	166
Mount Stewart to Georgetown	24
Charlottetown to Royalty Junction	5
Emerald Junction to Cape Traverse	13
Alberton to Cascumpec wharf	1
	209

Communication between the Prince Edward Island Railway and the Intercolonial Railway is afforded in summer by steamer between Summerside and Point du Chene, between Charlottetown and Pictou and between Georgetown and Pictou, and in winter by specially built steamers between Georgetown and Pictou and between Charlottetown and Pictou. There is also further provision made for communication by ice boats between Cape Traverse on Prince Edward Island and Cape Tormentine on the mainland, a distance of about 9 miles, at which latter place connection is made with the New Brunswick and Prince Edward Island Railway about 40 miles in length, connecting with the Intercolonial Railway at Sackville. This winter service across the Straits of Northumberland is efficiently worked by the Marine and Fisheries Department.

CANALS.

The following statements give in concise form the essential features of the government canal works and the intermediate water navigation:—

The canal systems of the Dominion, under government control in connection with lakes and navigable rivers, are as follows:—

First.—The through route between Montreal and the head of Lake Superior (14 feet minimum depth of water.)

	Miles.
1. Lachine Canal	8½
Lake St. Louis and River St. Lawrence	16
2. Soulanges Canal	14
Lake St. Francis and River St. Lawrence	33
3. Cornwall Canal	11
River St. Lawrence	5
4. Farran's Point Canal	1
River St. Lawrence	10
5. Rapide Plat Canal	3½
River St. Lawrence	4
6. Galops Canal	7¼
River St. Lawrence and Lake Ontario	236
7. Welland Canal	26¾
Lake Erie, Detroit River, Lake St. Clair, Lake Huron, &c.	580
8. Sault Ste. Marie Canal	1¼
Lake Superior to Port Arthur	266
Total	1,223¼
To Duluth	1,357
Chicago	1,286

Second.—Ottawa to Lake Champlain.

1. Grenville. 2. Carillon. 3. St. Anne's. 4. Chambly. 5. St. Ours Canals.

Third.—Ottawa to Kingston and Perth.

1. Rideau Canal.

Fourth.—Lake Ontario at Trenton to Lake Huron at mouth of River Severn.

1. Trent Canal (not completed).

Fifth.—Ocean to the Bras d'Or Lakes.

1. St. Peter's Canal.

RIVER ST. LAWRENCE AND LAKES.

The River St. Lawrence, with the system of canals established on its course above Montreal, and the Lakes Ontario, Erie, St. Clair, Huron and Superior, with connecting canals, afford a course of water communication extending from the Straits of Belle Isle to Port Arthur, at the head of Lake Superior, a distance of 2,200 statute miles. The distance to Duluth is 2,343 miles. The distance to Chicago 2,272 miles.

From the Straits of Belle Isle, at the mouth of the St. Lawrence, to Montreal, the distance is 986 miles. From Quebec to Montreal, the distance is 160 miles. Owing to the shallowness of the waters on a portion of the river between these two places, particularly through Lake St. Peter, vessels drawing more than from ten to twelve feet were formerly barred from passage for the greater part of the season of navigation. In 1826, the question of deepening the channel was first definitely mooted, but it was not until 1844 that any dredging operations were begun. In that year, the deepening of a new straight channel was commenced, but the scheme was abandoned in 1847. In 1851 the deepening of the present channel was begun. At that time the depth of the channel at low water was 10 feet 6 inches. By the year 1869, this depth had been increased to 20 feet, by 1882 to 25 feet, and by the close of 1888 the depth of 27½ feet, at low water, was attained for a distance of 108 miles from Montreal to a point within tidal influence. This work is now being continued by the government of Canada, which in 1888, under the provisions of the Act 51 Vic., ch. 5, of that year, assumed the indebtedness. The channel has a minimum width of 300 feet, extending to 550 feet at points of curvature. The channel is lighted and buoyed.

Navigation, which is closed by ice during the winter months, opens about the end of April.

Montreal has by this work been placed at the head of ocean navigation, and here the canal systems of the River St. Lawrence begin, overcoming the various rapids by which the river channel upwards is obstructed, and giving access through the St. Lawrence canals, the Welland canal, the great lakes and the Sault Ste. Marie canal, to the head of Lake Superior.

The difference in level between the point on the St. Lawrence, near Three Rivers, where tidal influence ceases, and Lake Superior, is about 600 feet.

The Dominion canals, constructed between Montreal and Lake Superior, are the Lachine, Soulanges, Cornwall, Farran's Point, Rapide Plat, Galops, Murray, Welland, and Sault Ste. Marie. Their aggregate length is 73 miles; total lockage (or height directly overcome by locks), 551 feet. The number of locks through which a vessel would pass in its passage from Montreal, at the head of ocean navigation, to the head of Lake Superior is 48. The Soulanges canal takes the place of the Beauharnois canal; the latter may be abandoned for navigation purposes.

Communication between Lakes Huron and Superior is obtained by means of the Canadian Sault Ste. Marie canal, and also by the St. Mary's Falls canal, situated on the United States side of the River St. Mary. Both these canals are free of toll.

The improvement of the United States channels in St. Mary's river has been continued from year to year, so that the dredged areas now total 34 miles in length, with a minimum width of 300 feet, which is increased at angles and other critical points to 1,000 feet. The depth is 20 feet at the mean stage of water. Excavation has now been commenced to afford 21 feet at the lowest stage of water.

It is important to note that the enlargement of the canals on the main route between Montreal and Lake Erie comprises locks of the following minimum dimen-

sions: Length, 270 feet; width, 45 feet; depth of water on sills, 14 feet. The length of the vessels to be accommodated is limited to 255 feet. At Farran's, in the canal of that name, the lock is 800 feet long. A similar lock is built at Iroquois on the Galops canal, the object being to pass a full tow at one lockage.

LACHINE CANAL.

Length of canal	8½ statute miles.
Number of locks	5
Dimension of locks	270 feet by 45 feet.
Total rise or lockage	45 feet.
Depth of water on sills, at two locks	18 "
Depth of water on sills, at three locks	14 "
Average width of new canal	150 "

The old lift locks, 200 feet by 45 feet, are still available, with 9 feet of water on mitre sills.

The canal consists of one channel, with two distinct systems of locks, the old and the enlarged. There are two lock entrances at each end.

The canal extends from the city of Montreal to the town of Lachine, overcoming the St. Louis rapids, the first of the series of rapids which bars the ascent of the River St. Lawrence. They are 986 miles distant from the Straits of Belle Isle.

SOULANGES CANAL.

Length of canal	14 Statute miles.
Number of locks { lift	4
Number of locks { guard	1
Dimensions of locks	280 feet by 45 feet.
Total rise or lockage	84 feet.
Depth of water on sills	15 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "
Number of arc lights	219 of 2,000 c.p. each.

The canal extends from Cascade Point to Coteau Landing, overcoming the Cascade Rapids, Cedar Rapids and Coteau Rapids.

From the head of the Lachine to the foot of the Soulanges the distance is sixteen miles.

CORNWALL CANAL.

Length of canal	11 statute miles.
Number of locks	6
Total rise of lockage	270 feet by 45 feet.
Total rise or lockage	48 feet.
Depth of water on sills	14 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "

The old lift locks, 200 feet by 45 feet, are also available, with nine feet of water on mitre sills.

From the head of the Soulanges to the foot of the Cornwall canal there is a stretch through Lake St. Francis, 32¾mile s, which is being made navigable for vessels drawing fourteen feet.

The Cornwall canal extends past the Long Sault Rapids from the town of Cornwall to Dickinson's Landing.

WILLIAMSBURG CANALS.

The Farran's Point, Rapide Plat and Galops canals are collectively known as the Williamsburg canals.

FARRAN'S POINT CANAL.

Length of canal	1 mile.
Number of locks	1
New lock	800 feet by 45 feet.
Old lock	200 "
Total rise of lockages	3½ feet.
Depth of water on sills of new lock	14 "
Depth of water on sills of old lock	9 "
Breadth of canal at bottom	90 "
Breadth of canal at water surface	154 "

From the head of the Cornwall canal to the foot of Farran's Point canal. the distance on the River St. Lawrence is five miles. The latter canal enables vessels ascending the river to avoid Farran's Point rapid, passing the full tow at one lockage. Descending vessels run the rapids with ease and safety.

RAPIDE PLAT CANAL

Length of canal	3⅔ miles.
Number of locks	2
Dimensions of locks	270 feet by 45 feet.
Total rise or lockage	11½ feet.
Depth of water on sills	14 "
Breadth of canal	80 "
Breadth of canal at surface water	152 "

The old lift lock, 200 feet by 45, is also available, with nine feet of water on mitre sills.

From the head of Farran's Point canal to the foot of Rapide Plat canal. there is a navigable stretch of 10½ miles. The canal was formed to enable vessels ascending the river to pass the rapids at that place. Descending vessels run the rapids safely.

GALOPS CANAL.

Length of canal	7⅓ miles.
Number of locks	3
Dimension of locks, one of which is a guard lock.	2-270 by 45. 1-800 by 45.
Total rise or lockage	15½ feet.
Depth of water on sills	14 "
Breadth of canal at bottom	80 "
Breadth of canal at surface of water	144 "

From the head of Rapide Plat canal to Iroquois, at the foot of the Gallops canal, the St. Lawrence is navigable 4½ miles. The canal enables vessels to overcome the rapids at Pointe aux Iroquois, Port Cardinal and the Galops.

MURRAY CANAL

Length between eastern and western pier heads	5⅛ miles.
Breadth at bottom	80 feet.
Breadth at water surface	120 "
Depth below lowest known lake level	11 "

No locks.

This canal extends through the Isthmus of Murray, giving connection westward between the head waters of the Bay of Quinté and Lake Ontario, and thus enabling vessels to avoid the open lake navigation.

WELLAND CANAL.

Main line from Port Dalhousie, Lake Ontario, to Port Colborne, Lake Erie.

	Old Line.	Enlarged or New Line.
Length of canal	27½ miles	26¾ miles.
Pairs of guard-gates (formerly 3)		2
Number of locks, lift	26	25
Number of locks, guard	1	1
Dimensions	1 lock 200 x 45 1 lock 200 x 45 1 (tidal) 230 x 45 24 locks 150 x 45	270 feet x 45 feet.
Total rise or lockage	326¾ feet	326¾ feet.
Depth of water on sills	10¼ "	14 "

WELLAND RIVER BRANCHES.

Length of canal—	
Port Robinson Cut to River Welland	2,622 feet.
From the canal at Welland to the river, via lock at Aqueduct	300 feet.
Chippewa Cut to River Niagara	1,020 feet.
Number of locks—one at Aqueduct and one at Port Robinson	2
Dimensions of locks	150 by 26½ feet.
Total lockage from the canal at Welland down to River Welland	10 feet.
Depth of water on sills	9 feet 10 inches.

GRAND RIVER FEEDER.

Length of canal	21 miles.
Number of locks	2
Dimensions of locks	1 of 150 by 26½ feet. 1 of 200 by 45 "
Total rise or lockage	7 to 8 feet.
Depth of water on sills	9 feet

PORT MAITLAND BRANCH.

Length of canal	1¾ miles.
Number of locks	1
Dimensions of locks	185 feet by 45 feet.
Total rise or lockage	7½ feet.
Depth of water on sills	11 feet.

The Welland canal has two entrances from Lake Ontario, at Port Dalhousie, one for the old, the other for the new canal.

From Port Dalhousie to Allanburgh, 11¾miles, there are two distinct lines of canal in operation, the old line and the enlarged or new line.

From Allanburgh to Port Colborne, a distance of 15 miles, there is only one channel, the old canal having been enlarged.

From the head of the Welland canal there is a deep water navigation through Lake Erie, the Detroit river, Lake St. Clair, the St. Clair river, Lake Huron and River St. Mary to the Sault canal, a distance of about 580 miles. From the Sault the distance through Lake Superior to Port Arthur is 266 miles, and to Duluth 400 miles.

SAULT STE. MARIE CANAL.

Length of canal, between the extreme ends of the entrance piers	5,967 feet.
Number of locks	1
Dimensions of locks	900 feet by 60 feet.
Depth of water on sills (at lowest known water level)	20 feet 3 inches.
Total rise or lockage	18 feet.
Breadth of canal at bottom	141 feet 8 inches.
Breadth at surface of water	150 feet.

This canal has been constructed through St. Mary's Island, on the north side of the rapids of the River St. Mary, and, with that river, gives communication on Canadian territory between Lakes Huron and Superior.

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the harbour of Montreal to the port of Kingston, passing through the Lachine canal, the navigation section of the lower River Ottawa, and the Ottawa canals, to the city of Ottawa; thence by the River Rideau and the Rideau canal to Kingston, on Lake Ontario—a total distance of 245§ miles.

After leaving the Lachine canal the works constructed to overcome difficulties of navigation are:—

Ottawa River Canals.

The Ste. Anne's Lock.	Grenville Canal.
Carillon Canal.	Rideau Canal.

The total lockage (not including that of the Lachine canal) is 509 feet—(345 rise, 164 fall)—and the number of locks is 55.

The following table exhibits the intermediate distances from Montreal harbour:—

Sections of Navigation.	Intermediate Distance.	Total Distance from Montreal.
	Miles.	Miles.
The Lachine canal	8½	
From Lachine to Ste. Anne's lock	15	23
Ste. Anne's lock and piers	¼	23
Ste. Anne's lock to Carillon canal	27	50
The Carillon canal	¾	51
From Carillon to Grenville canal	6¼	57
The Grenville canal	¾	63
From the Grenville canal to entrance of Rideau navigation	56	119
Rideau navigation ending at Kingston	126¼	245

STE. ANNE'S LOCK.

	New lock.	Old lock.
Length of canal	$\frac{1}{8}$ mile.	$\frac{1}{8}$ mile.
Number of locks	1	1
Dimensions of locks	200 x 45 feet.	190 x 45 feet.
Total rise or lockage	3 feet.	3 feet.
Depth of sills	9 "	6 "

This work, with guide piers above and below, surmounts the Ste. Anne's rapids between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains, 23½ miles from Montreal harbour.

THE CARILLON CANAL.

Length of canal	$\frac{3}{4}$ mile.
Number of locks	2
Dimensions of locks	200 x 45 feet.
Total rise or lockage	16 feet.
Depth of water on sills	9 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	110 "

This canal overcomes the Carillon rapids.

From Ste. Anne's lock to the foot of the Carillon canal there is a navigable stretch of 27 miles, through the Lake of Two Mountains and the River Ottawa.

By the construction of the Carillon dam across the River Ottawa the water at that point is raised 9 feet, enabling the river above to be used for navigation.

GRENVILLE CANAL.

Length of canal	5¾ miles.
Number of locks	5
Dimensions of locks	200 x 45 feet.
Total rise or lockage	43¾ feet.
Depth of water on sills	9 "
Breadth of canal at bottom	40 to 50 feet.
Breadth of canal at surface of water	50 to 80 "

This canal, by which the Long Sault Rapids are avoided, is about 56 miles below the city of Ottawa, up to which point the River Ottawa affords unimpeded navigation.

RIDEAU NAVIGATION.

The Rideau system connects the River Ottawa, at the city of Ottawa, with the eastern end of Lake Ontario, at Kingston.

Length of navigation waters	126¼ miles.
Number of locks going from Ottawa to Kingston	35 ascending. 14 descending.
Total, lockage 446¼ feet	282¼ rise and 164 fall at high water.
Dimensions of locks	134 x 33 feet.
Depth of water on sills	5 feet.
Navigation depth through the several reaches	4½ "
Breadth of canal reaches at bottom	60 feet in earth. 54 feet in rock.
Breadth of canal at surface of water	80 feet in earth.

PERTH BRANCH.

Length of canal	6 miles.
Number of locks	2
Dimensions of locks	134 feet x 32 feet.
Total rise or lockage	26 "
Depth of water on sills	5 " 6 inches.
Length of dam	200 "
Breadth of canal at bottom	40 "
Breadth of canal at surface at water	60 " in clay. 40 " in rock.

The Perth branch of the Rideau canal affords communication between Beveridge's bay, on Lake Rideau, and the town of Perth.

The summit level of the Rideau system is at upper Lake Rideau, but several of the descending reaches are also supplied by waters which have been made tributary to them. The following description gives the sources of supply:—

From the summit, the route towards Ottawa follows the Rideau river, and that towards Kingston follows the River Cataraqui. The supply of water for the canal is derived from the reserves given in detail below.

These may be divided into three systems, viz.:—

1. The summit level, supplied by the Wolfe lake system.

2. The eastern descending level to Ottawa, supplied by the River Tay system, discharging into Lake Rideau.

3. The south-west descending level to Kingston, supplied by the Mud lake system formerly known as the Devil lake system, discharging into Lake Openicon.

Lake Openicon receives the waters of Buck lake and Rock lake.

All these waters on the descending level, supplemented by those of Lake Loughboro', flow into Cranberry lake, which, discharging through Round Tail outlet, forms the River Cataraqui. The river, rendered navigable by dams at various points, affords a line of navigation to Kingston.

RICHELIEU AND LAKE CHAMPLAIN.

This system, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the River Richelieu, through the St. Ours lock to the basin of Chambly; thence, by the Chambly canal, to St. Johns, and down the River Richelieu to Lake Champlain. The distance from Sorel to the boundary line is 81 miles.

At Whitehall, the southern end of Lake Champlain is entered, and connection is obtained with the River Hudson, by which the city of New York is directly reached. From the boundary line to New York the distance is 330 miles.

The following table shows the distances between Sorel and New York:—

Section of Navigation.	Intermediate Distance.	Total Distances
	Miles.	Miles.
Sorel to St. Ours lock	14	14
St. Ours lock to Chambly canal	32	46
Chambly canal	12	58
Chambly canal to boundary line	23	81
Boundary line to Champlain canal	111	192
Champlain canal to junction with Erie canal	66	258
Erie canal from junction to Albany	7	265
Albany to New York	146	411

ST. OURS LOCK AND DAM.

Length	⅛ mile.
Number of locks	1
Dimensions of locks	200 feet by 45 feet.
Total rise of lockage	5 feet.
Depth of water on sills	7 feet at low water.
Length of dam in eastern channel	300 "
Length of dam in western channel	690 "

At St. Ours, 14 miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours lock is in the eastern channel.

There is a navigable depth in the Richelieu of 7 feet between St. Ours lock and Chambly basin, a distance of 32 miles

CHAMBLY CANAL.

Length of canal	12 miles.	
Number of locks	9	
Dimensions of locks:—		
Guard lock, No. 1 at St. Johns	122 feet.	From 22½ to 24 feet wide.
Lift " 2	124 "	
" " 3, 4, 5, 6	118 "	
" " 7, 8, 9 combined	125 "	
Total rise or lockage	74 "	
Depth of water on sills	7 "	
Breadth of canal at bottom	36 "	
Breadth of canal at surface of water	60 "	

This canal succeeds the 32 miles of navigable water between St. Ours lock and Chambly basin. The canal overcomes the rapids between Chambly and St. Johns.

TRENT CANAL.

The term 'Trent canal' is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in the present condition, are efficient only for local use. By various works this local use has been extended, and by others, now in progress and contemplation, this will become a through route between Lake Ontario and Lake Huron.

The series is composed of a chain of lakes and rivers, extending from Trenton, at the mouth of the River Trent, on the Bay of Quinté, Lake Ontario, to Lake Huron.

Many years ago the utilizing of these waters for the purpose of through water communication between Lake Huron and Lake Ontario was projected.

The course, as originally contemplated and modified, is as follows:—

Through the River Trent, Rice lake, the River Otonabee and Lakes Clear, Stony, Lovesick, Deer, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 165 miles from Trenton; from Lake Balsam by a canal and the River Talbot to Lake Simcoe; thence across Lake Simcoe to the Severn river; thence by the River Severn to Georgian bay, Lake Huron; the total distance being about 200 miles, of which only about 15 or 20 miles will be actual canal.

The full execution of the scheme, commenced by the Imperial government in 1837, was deferred. By certain works, however, below specified, sections of these waters have been made practicable for navigation, and the whole scheme is now being carried out. A branch of the main route, extending from Sturgeon lake south, affords communication with the town of Lindsay, and, through Lake Scugog to Port Perry, a distance of 190 miles from Trenton.

The following table gives the distance of navigable and unnavigable reaches:—

	Navigable Miles.	Unnavigable Miles.
From Trenton, Bay of Quinté to Nine Mile rapids....	—	9
Nine Mile rapids to Percy landing..	19½	—
Percy landing to Heeley's Falls dam..	—	14½
Heeley's Falls dam to Peterborough..	51¾	—
Peterborough to Lakefield..	—	9½
Lakefield to a point across Balsam lake..	61	—
Balsam lake to Lake Simcoe..	—	18¾
Across Lake Simcoe to Severn river..	18	—
Lake Simcoe to Georgian bay via Severn river..	—	14
	150¼	65¾
Total distance, Bay of Quinté to Georgian bay..		212
From Sturgeon Point on Sturgeon lake, 48¾ miles from Lakefield, the branch through the town of Lindsay to Port Perry at the head of Lake Scugog..		27

The works by which the Trent navigation has been improved comprise canals, with locks and bridges, at Young Point, Burleigh Rapids, Lovesick, Buckhorn Rapids, Bobcaygeon, Fenelon Falls and Rosedale; also dams at Lakefield, Young's Point, Burleigh Falls, Lovesick, Buckhorn, Bobcaygeon and Fenelon Falls. By these works there is afforded communication between Lakefield, 9½ miles from Peterborough, and Balsam lake, the headwaters of the system; opening up a total of about 160 miles of direct and lateral navigation.

At Lakefield, 9½ miles from Peterborough, the dam at the head of the Nine Mile rapids of the River Otonabee, maintains navigation on Lake Katchewannoe up to Young's Point.

At Young's Point, 5 miles from Lakefield, the dam between Lake Katchewannoe and Clear lake controls the water level through Clear and Stony lakes up to the foot of the Burleigh canal. The lock here, it should be observed, is controlled by the Provincial government.

At Burleigh Rapids, 10 miles from Young's Point, a canal, about 2¼ miles in length, passes the Burleigh and Lovesick rapids, and gives communication between Stony lake and Deer bay.

At Buckhorn rapids, 7 miles from Burleigh rapids, there is a canal about one-fourth of a mile long.

At Bobcaygeon, 15¾ miles from Buckhorn rapids, a dam, 553 feet long, controls the water level up to Fenelon Falls.

At Fenelon Falls, 15 miles from Bobcaygeon, a canal about one-third of a mile in length connects Sturgeon lake with Cameron lake.

The following is a list of the locks, with their dimensions:—

1	Lock at Rosedale (maintained by the Ontario government),	100′ x 30′ x 4′6″ to 6′ 6″ depth water on mitre sill.
2	Locks at Fenelon	134′ x 33′ x 5′0″ to 7′ 6′ depth of water on mitre sill.
1	" Lindsay	134′ x 33′ x 5′ 0″ to 7′ 0″ " "
1	" Bobcaygeon	134′ x 33′ x 5′ 8″ to 7′ 6″ " "
1	" Buckhorn	134′ x 33′ x 5′ 0″ to 9′ 0 " "
1	" Lovesick	134′ x 33′ x 5′ 0″ to 9′ 4″ " "
2	" Burleigh	134′ x 33′ x 6′ 0″ to 8′ 0″ " "
1	" Young's Point (a provincial government work)	134′ x 33′ x 5′ 0″ to 14′ 0″ depth of water on mitre sill.
1	" Peterborough	134′ x 33′ x 5′ 0″ to 10′ 0″ depth of water on mitre sill.
1	" Chisholm's	134′ x 33′ x 5′ 0″ to 8′ 6″ " "
1	" Hastings	134′ x 33′ x 7′ 0″ to 10′ 6″ " "
1	Hydraulic lift lock at Ashburnham.	
14		

ST. PETER'S CANAL, CAPE BRETON.

Length of canal	About 2,400 feet.
Breadth at water line	55 feet.
Lock	One tidal lock, 4 pairs of gates
Dimensions	200 feet by 48 feet.
Depth of water on sills	18 feet at lowest water.
Depth through canal	19 feet.
Extreme rise and fall of tide in St. Peter's bay	4 feet.

This canal connects St. Peter's bay on the southern side of Cape Breton, Nova Scotia, with the Bras d'Or lakes. It crosses an isthmus half a mile in width, and gives access from the Atlantic.

BEAUHARNOIS CANAL.

Length of canal	12 statute miles.
Number of locks	9
Dimensions of locks	200 feet by 45 feet.
Total rise or lockage	82½ "
Depth of water on sills	9 "
Breadth of canal at bottom	80 "
Breadth of canal at water surface	120 "

As the new Soulanges canal is now opened for navigation the Beauharnois canal is practically abandoned for navigation purposes.

I have the honour to be, sir,

Your obedient servant,

M. J. BUTLER,

Deputy Minister and Chief Engineer of Railways and Canals.

The Honourable H. R. EMMERSON,

Minister of Railways and Canals.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE GENERAL MANAGER,
MONCTON, N.B., October 5, 1905.

SIR,—I have the honour to submit the following report on the working of the Intercolonial Railway during the fiscal year ended June 30, 1905.

I inclose the report of the Chief Engineer on the works charged to capital account, the report of the engineer of maintenance on the repair and renewal of the permanent way, buildings and works, and the report of the superintendents of motive power and of the mechanical accountant, with the statements relating to the mechanical department; also the following statements of the accounts of the railway prepared by the chief accountant and treasurer:—

1. Capital account.
2. Revenue.
3. Locomotive power.
4. Car expenses.
5. Maintenance of way and works.
6. Station expenses.
7. General charges.
8. Special votes.
9. General stores.
10. General balance.
11. Comparative statement of averages.

The length of railway in operation on June 30, 1904, was 1320·92 miles. On October 1, 1904, the line of railway known as the Canada Eastern Railway, extending from Gibson to Loggieville, 123·67 miles in length, was purchased by the Dominion government and added to the Intercolonial; on April 19, 1905, the Fredericton and St. Mary's bridge and property connected with it were surrendered to the Dominion government by the Fredericton and St. Mary's Bridge Company and added to the Intercolonial, an additional mileage of 1·33 miles, making a total mileage in operation on June 30, 1905, of 1445·92 miles.

CAPITAL ACCOUNT.

The total cost of road and equipment on June 30, 1904, was $72,735,935.80.
The additions during the year were as follows:—

Purchase of Canada Eastern Railway	$ 800,000 00
To increase accommodation at Sydney	59,288 88
Original construction	11,008 31
To strengthen bridges	246,242 05
To increase accommodation at Lévis	16,999 64
Air brakes to freight cars	24,991 13
To exchange drawbars of freight cars	45,010 00
New machinery for locomotive and car shops	40,308 54
To equip 4 passenger cars with Pintsch gas apparatus	1,401 26
To equip passenger cars with vestibules	1,773 53
Additional sidings along the line	139,165 49

Increased accommodation and facilities along the line	$ 132,717 35
New superstructure, Restigouche bridge	43,363 09
To dredge and blast rock at deep water terminus, Halifax	8,952 55
Improvements at Little Met's station, and diverting public road	4,335 51
New station at Windsor, N.S., &c	8,563 59
To increase accommodation at Amherst	16,752 13
To increase water supply	14,812 35
Increase accommodation at Amqui	13,014 39
Increased accommodation, Stellarton	26,728 48
Engine house, machine shop, &c., Rivière du Loup	66,986 48
Engine house, &c., Chaudière Junction	34,623 62
Increased accommodation, St. John	46,396 21
To increase accommodation at Halifax	372,791 09
To increase accommodation, Pictou	68,125 14
Improvements, North Sydney	14,462 99
To increase accommodation at Moncton	85,105 87
To increase accommodation Ste. Flavie	60,759 71
Towards improving ferry service at Strait of Canso	45,928 56
Protection to Grand Narrows bridge	35,801 68
Semaphores at stations	1,186 09
Portable plant for boring and cutting rails	14,674 75
Extension to Sydney Mines	24,044 93
Diversion of line at St. Leonard Junction	10,562 18
Diversion of line at Mitchell	12,394 26
To reduce curve at Birch Cove	42 447 54
Double tracking parts of the line	151,147 01
Rolling stock	1,377,078 11
Steel rails and fastenings	495,009 89
Increased accommodation at Truro	56,468 57
Drummondville, Improvements at	9,207 76
Rivière Ouelle, Improvements at	3,480 76
St. Moise, Station at	4,111 29
To eliminate two road crossings at rail level at the Cape Road crossing near Dorchester, N.B.	4,421 47
Increased accommodation at Antigonish	14,046 83
Siding at St. Romuald	1,079 80
Diversion of public road to eliminate a crossing at rail level between St. Cyrville and Drummondville	500 00
Increased accommodation at Memramcook	4,871 57
New Glasgow, Increased accommodation at	779 50
Additional sidings and spur lines	23,700 00
Total	$ 4,737,621 93
Making the total cost on June 30, 1905	77,473,557 73

New machinery for locomotive and car shops.

This is for additional machinery for the construction and repair of locomotives and cars, and for the installation of it.

Rolling stock.

Ten consolidation locomotives for freight service, twelve Pacific type locomotives for passenger service, ten first-class sleeping cars, four parlour cars, two dining cars, twenty first-class passenger cars, four second-class sleeping cars, three postal cars, one combined postal and baggage car, and one hundred and fifty box freight cars, were purchased.

To exchange drawbars of freight cars.

Nine hundred and two freight cars were changed from the link and pin drawbar to the M.C.B. coupler.

Air brakes to freight cars.

Four hundred and fifty-four freight cars and thirteen freight vans were equipped during the year with Westinghouse automatic quick action air brake.

The explanation in regard to the other expenditures on capital account will be found in the report of the Chief Engineer.

REVENUE ACCOUNT.

The gross earnings and the working expenses for the year compare as follows:—

Gross earnings	$6,783,522 83
Working expenses	8,508,826 75
Deficiency	$1,725,303 92

The gross earnings compare as follows with those of the previous year:—

In 1904-05	$6,783,522 83
In 1903-04	6,339,231 43
Increase	$ 444,291 40

The earnings from passenger traffic compare as follows:—

In 1904-05	$2,105,066 75
In 1903-04	2,021,568 04
Increase	$ 83,498 71

The earnings from freight traffic compare as follows:—

In 1904-05	$4,373,178 55
In 1903-04	4,041,122 48
Increase	$ 332,056 07

The earnings from mails and express freight compare as follows:—

In 1904-05	$ 305,277 53
In 1903-04	276,540 55
Increase	$ 28,736 98

The earnings by mile of railway compare as follows:—

In 1904-05	$ 4,795 13
In 1903-04	4,799 10

The earnings by train mile compare as follows:—

	Cents.
In 1904-05	0·929
In 1903-04	0·974

The number of passengers carried compare as follows:—

In 1904-05	2,810,960
In 1903-04	2,663,156
Increase	147,804

Of this increase 142,085 were local passengers and 5,719 were through passengers.
The weight of freight carried compares as follows:—

	Tons.
In 1904-05	2,782,257
In 1903-04	2,664,149
Increase	118,108

There was a decrease in local freight of 3,733 tons, and an increase in through freight of 121,841 tons.

The following is a comparative statement of a few of the chief articles of freight, showing the quantity carried in this and in the previous year:—

Articles.	1903-04.	1904-05.	Increase.	Decrease.
Barrels of flour and meal	1,607,050	1,769,480	162,430	
Bushels of grain	2,788,772	3,317,910	529,138	
Lumber in superficial feet	465,379,803	518,434,310	53,054,507	
Head of live stock	113,006	110,670		2,336
Coal in tons	694,761	602,377		92,384
Manufactured goods in tons	522,410	632,023	109,613	
Cords of firewood	53,606	79,513	25,907	
All other articles in tons	1,194,163	504,991		689,172

There was an increase over last year in the quantity of the following articles carried:—

Flour, meal and other mill products, eggs, hay and straw, apples, calves, sheep and lambs, logs, ship timber, pulpwood, railway ties, tanbark, firewood, clapboards, laths and palings, stone, lime and cement, iron and other metals, salted, dried and canned fish, clams, molasses and leather.

There was a decrease in the quantity of the following:—Potatoes and other vegetables, butter and cheese, horses, horned cattle, pigs, lumber, pit props, telegraph poles, shingles, extract of hemlock bark, coal, ore, brick, sand, fresh fish, oysters, sugar, salted and fresh pork, salted and fresh beef, hides and skins.

WORKING EXPENSES.

The working expenses compare as follows with the previous year:—

In 1904-05	$8,368,826 75
In 1903-04	7,099,982 04
Increase	$1,268,844 71

The averages compare with those of last year as follows:—

Per mile run by engines—	
In 1904-05	88·93
In 1903-04	86·32
Per mile run by trains—	
In 1904-05	114·69
In 1903-04	109·17
Working expenses per mile of railway—	
In 1904-05	$ 5,915 74
In 1903-04	5,375 03

The rent paid to the Grand Trunk Railway Company, $140,000, is not included in the above, as it would disturb the comparison with previous years; no corresponding change relating to the cost of any portion of the railway having been included in the working expenses previous to the year 1898-99.

The permanent way and structures and all the works of the railway received necessary repairs and are in good order.

The number of ties renewed was 730,451. Two hundred and fifty sets of switch ties were also renewed.

109·62 miles of track was reballasted, 164,440 cubic yards of ballast being used.

Bridges, culverts, wharfs and buildings received necessary repairs.

The fences were repaired and 63·52 miles of fences were built.

The snow sheds and snow fences were repaired.

The rolling stock received necessary repairs, and is in good order.

Three heavy locomotives for shunting purposes were purchased to replace an equal number of smaller and lighter ones taken out of service.

Two first class passenger cars, one hundred and six box freight cars, two hundred platform cars and two hundred and fifty hopper cars were purchased; four second-class cars, five box freight cars, thirty five platforms cars, one auxiliary car, one flanger car, three snow-ploughs, and one wing plough, were built in the work shops of the railway; all to replace an equal number taken out of service. The box and platform cars were of greater capacity than the ones they replaced. The two hundred and fifty hopper cars were of fifteen tons capacity each, and they were substituted for hopper cars of six tons capacity each.

STORES.

The value of stores purchased was	$3,501,106 36
The value of stores used was	4,213,938 86
The value of material sold was	247,415 87

The value of stores on hand at the end of the year was:—

Miscellaneous	$ 143,042 41
Fuel	71,461 59
Track materials	279,150 10
Iron and steel rails	677,475 58
Total	$1,171,129 68

GENERAL.

In the month of January, 1905, the storehouse at Stellarton adjoining the engine-house was destroyed by fire.

In the month of May, 1905, the station and other railway buildings at McIntyre's Lake were destroyed by fire. Also the freight shed and cattle pen at Painsec Junction.

The winter of 1904-05 was a very cold and tempestuous one, especially in Nova Scotia and the southern part of New Brunswick, and the snow fall was much above the average. The greatest difficulty from this cause was experienced in February and March, and during those months, notwithstanding the utmost exertions of the officials and employes, the track was blockaded on several occasions, on parts of the line, and there was considerable delay and interruption to passenger and freight traffic.

The severity of the winter had a most injurious effect financially on the operations of the year, for in addition to the direct cost of clearing snow and ice from the tracks, there was an indirect cost of repairing the damage done to locomotives, snow-ploughs and other rolling stock, thus greatly increasing the operating expenses; while on the other side of the account there was loss of revenue due to the snow blockades.

It is proper that I should mention here another matter, which caused a considerable loss of revenue to the railway during the year. The summer of 1904 was unusually dry in the eastern part of Nova Scotia and in Prince Edward Island, and as a result the crop of hay was deficient. Under these circumstances, a strong appeal was made to the government for assistance to the farmers to enable them to feed their live stock, and it was decided to carry over the Intercolonial without charge, hay for the use of farmers in those districts. The quantity so carried was 36,609 tons, the Intercolonial Railway freight on which amounted to $140,733.30, of which $125,-855.46 were refunded and deducted from the earnings of the railway during the year

I have the honour to be, sir,

Your obedient servant,

D. POTTINGER,

General Manager, Government Railways.

M. J. Butler, Esq., C.E.,
Deputy Minister and Chief Engineer,
Department Railways and Canals,
Ottawa, Ont.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE CHIEF ENGINEER,
MONCTON, N.B., Sept. 13, 1905.

SIR,—I have the honour to submit the following report on capital account expenditure for the fiscal year ending June 30, 1905.

To increase accommodation at Sydney.

The new building 170′ 10″ long for coal house, with hoisting machinery, was completed and 504 feet of tracks required in connection with same were put in.

The freight shed was moved from the old site, which was required for the passenger station now being built and placed on new foundations on the site between York and Ferry streets. All necessary filling in and grading was done. Eleven hundred feet of tracks required in connection with the new site were put in and ballasted; a new roadway was also made between York and Ferry streets at the rear of sheds. A roadway was also made at the rear of freight shed north of York street, built two years ago. Nineteen hundred and fifty feet of tracks to car repair shop were put in.

Water service was extended, and one additional stand pipe put in. A contract was let for a brick and stone passenger station, and the work of construction is under way.

Original construction.

Under this vote, amounts were paid H. N. Paint. Pt. Tupper, the Cunard estate, North Sydney and heirs D. D. Young, Lévis, and amounts were paid for legal services in connection with the above and other cases.

To strengthen bridges.

The following spans, purchased during the last year and the present year, have been put in place: New Glasgow under-crossing, 1 span, 22 feet 6 inches, 3 spans, 44 feet 9 inches each; Perkins bridge, 35 feet 6 inches; South Cocaigne, 1 span, 28 feet 3 inches; Chisholm bridge, 1 span, 26 feet; North River, 1 span, 55 feet; Buctouche, 1 span, 34 feet; South Coal branch, 3 spans (1 span 40 feet 4 inches, 2 spans, 38 feet 4 inches each); Red Pine brook, 1 span, 24 feet 4 inches; Gordon's brook, 1 span, 47 feet; St. Alexis, 1 span, 28 feet; Tobogote, 1 span, 34 feet; West Tobogote, 1 span, 23 feet; Cedal Hall, 1 span, 29 feet; St. Moise, 1 span, 25 feet 6 inches; St. Moise tank, 1 span, 45 feet 6 inches; Ste. Flavie No. 1, 1 span, 25 feet; Ste. Flavie, No. 2, 1 span, 24 feet 4 inches; Ste. Luce No. 1, 1 span, 24 feet 3 inches; Ste. Luce No. 2, 1 span, 24 feet; Ste. Luce No. 3, 1 span, 28 feet 6 inches; St. Anaclet, 1 span, 24 feet; Bic, 1 span, 25 feet; St. Fabien No. 1, 1 span, 20 feet 9 inches; St. Fabien No. 2, 1 span, 21 feet; Trois Pistoles, 1 span, 17 feet; Isle Verte, 1 span, 21 feet 3 inches; Terryburn, 1 span, 29 feet 6 inches; Brockville public crossing, 1 span, 55 feet 6 inches; Quispamsis, 1 span, 24 feet; Darling's brook, 1 span, 25 feet 5 inches; Groom's cove 1 span, 20 feet 6 inches; Morton's mill race, 1 span, 34 feet; North and South Charlo river, 5 spans, 56 feet each.

The necessary alterations and repairs to the masonry of abutments and piers has been done, new floors put upon these bridges, and the work of reconstruction has been completed.

Halifax overhead bridge.

A very heavy highway bridge with two roadways. This bridge has ben completed as far as practicable until the rock excavation required for the third track is finished.

The following named bridges have been strengthened by being doubled up with spans taken out elsewhere, the work involving the transfer of the doubling-up spans from their previous location and their erection at their new location: Indian brook, 2 spans; Richibucto, 3 spans; North Coal branch, 3 spans; Trois Pistoles, 1 span; Dickey's bridge, 1 span; Otter brook, 1 span; St. Anaclet, 1 span.

The following new single track bridges have been contracted for, and their construction and erection is now in progress: Sutherland river bridge, 1 span, 166 feet 6 inches; Sackville, 3 spans, 163 feet 3 inches each; La Planche bridge, 1 span, 81 feet 11½ inches; Salmon river, 2 spans, 104 feet each; Mitchell, 2 spans, 193 feet, 4 girder spans, various lengths, 2 steel trestle tower bents, 5 masonry piers and 2 abutments; St. Leonard, 2 spans, 164 feet 2½ inches, 8 girder spans, various lengths, 3 trestle towers, 9 masonry piers and 2 abutments; East river bridge, 4 spans, 86 feet each. This is a heavy double-track, 3-girder bridge, replacing a single-track old English bridge. In connection with this bridge, a temporary pile bridge was built, so that traffic would not be interfered with during the erection of the new bridge. The necessary extension to the piers and abutments is under construction.

Substructures for two single track bridges to be erected over the southwest and southeast branches of Nicolet river, near Mitchell and St. Leonard Junction station, P.Q.,are under contract, but up to date preparatory work only has been done.

To increase accommodation at Lévis.

The overhead bridge bought last year was transferred to Pictou, N.S., where it will be erected in connection with the new station now under construction. A loading platform was built on the north side of the freight house. The boiler plant with induced draft apparatus that was purchased last year, has been installed. Tanks in connection with the water service wert put in new station, the old passenger station was converted into a freight shed, and a loading platform built on the north side of same. The temporary baggage room which was erected for use while the station now under construction, was moved and remodelled for the use of the mechanical department.

The work in connection with the electric wiring of the umbrella roofs has been completed.

The concrete foundations for the umbrella roofs were completed. A large quantity of material for the concrete platforms has been delivered and about 1,500 square yards laid.

Additional sidings along the line..

The following sidings have been put in:—

	Feet.
Petitcodiac, extension siding	875
Sussex, extension siding	620
Quispamsis, extension siding	272
Shediac, new siding	1,750
Pt. du Chene, new siding	1,500
Debert, new siding	1,588
Debert, extension siding	1,000
Wentworth, extension siding	250
Salt Springs, new siding	2,002
Springhill Junction, new siding	1,136
Athol, new siding	465
Memramcook, extension siding	2,000
Between Glengarry and Hopewell, new crossing siding	2,600
Lansdowne, new siding	560
Sandy Cove, new siding	190
Riversdale, extension siding	2,027

	Feet.
Hilden, extension loading siding	545
Brookfield, extension loading siding	2,420
Oxford Junction, extension siding	1,400
Tufts Cove, new siding	275
Brierly Brook, extension siding	930
Merigomish, extension siding	401
Christmas Island, new crossing siding	1,470
Alba, extension siding	867
Coal Branch, extension siding	428
Adamsville, extension siding	550
Barnaby River, extension siding	1,600
New Castle, new siding	4,900
Gloucester Junction, new siding	1,400
Beresford, extension siding	340
New Mills, new siding	1,503
Beaver Brook, new siding	805
Red Pine, new siding	2,200
Campbellton, new siding	1,682
Campbellton land purchased for siding.	
Assametquagan, new siding	398
Beau Rivage, new siding	520
St. Moise, new siding	431
Ste. Luce, extension siding	720
St. Anaclet, new siding	1,616
Bic, extension siding	550
St. Fabien, extension siding	1,600
St. Simon, extension siding	700
Trois Pistoles, extension siding	775
St. Eloi, extension siding	800
St. Arsene, extension siding	700
Cacouna, extension siding	202
St. Phillippe de Neri, extension siding	1,300
St. Pacome, extension siding	600
Ste. Anne, new siding	1,125
Ste. Louise, extension siding	300
St. Jean Port Joli, extension siding	500
Cap St. Ignace, extension siding	1,700
Ste. Helene, extension siding	1,023
Forestdale, new siding	845
St. Edward, new cross over siding,	124
St. Edward, extension siding	801
Nelson, extension siding	704
Stewiacke, extension crossing	300
Johnstone's Road, new spur	440
Sultan Road, new spur	450
Chatham Junction, ext. siding	150
Cushman's Ballast Pit, new siding	910
Chelmsford, new spur	312
Grey Rapids, new siding	338
Coughlan's, ext. siding	576
Upper Blackville, ext. siding	470
Weaver's, ext. siding	500
Hurley's Brook, new spur	200
Carroll's, new spur	452

	Feet.
McNamee's, ext. siding	600
Astles, ext. crossing siding	495
Penniac, ext. siding	600
Gibson, new spur	1,225
Pictou, landing siding completed	....
Glengarry, loading siding	450
Meadow, crossing siding	2,100

Increased accommodation and facilities along the line.

The following work was done under this appropriation:—

Pomquet platform was extended 89 feet.

Belmont platform was extended, cellar and drain provided.

Alton, loading platform and new station provided.

South River, platform extended 88 feet.

Afton, platform extended 75 feet.

Antigonish, loading platform, 127 feet.

Charlo, addition to station.

St. Pacome, station remodelled and enlarged and loading platform provided.

Montmagny, extension to station.

Ste. Anne, station remodelled and enlarged.

Rogersville, station enlarged and baggageroom provided, platform ext.

Bathurst, addition to freight shed.

Oxford Junction, extension to freight shed and platform extended 272'.

Campbellton, toilet accommodation put in freight shed, platform extended and cattle pen provided.

Bayfield Road, new station provided, old station converted into a freight shed and baggage room.

Hilden station, enlarged and improved, and freight shed provided.

Mulgrave, freight shed provided and platform extended.

Salmon Lake, station provided, land purchased, existing building moved and new platform built.

Sussex, addition to freight shed and additional land purchased.

Canaan, freight shed and station remodelled, platform ext., and cattle pen provided.

St. Charles Junction, addition to station.

Shubenacadie, addition to freight shed and extension to platform.

Granton, station.

Ste. Louise, addition to station and dwelling.

Villeroy, new station.

McKinnon's Harbour, improvements to loading ground, and extension to platform.

Brierly Brook, extension to platform, 100 feet.

Mitchell, dwelling for agent and freight shed provided.

Debert, new freight shed and extension to platform.

Rimouski, addition to ice house and platform extended.

Nash's Creek, addition to station.

River John, remodelled station.

St. Paschal, station enlarged.

Rivière du Loup, ice house.

New Glasgow, addition to baggage room.

Valley, platform extended 175 feet.

Lansdowne, platform extended 170 feet.

Brookfield, platform extended 215 feet.

Fairview, platform extended 150 feet.

Elmsdale, platform extended 275 feet.
Glengarry, platform extended 170 feet.
Ste. Flavie, addition to ice house.
St. Alexis, addition to station and water supply.
Laurier, freight shed and platform provided, and cellar enlarged.
St. Romuald, cellar under station enlarged and drain provided.
George's River, platform extended 80 feet.
Boiesdale, platform extended 100 feet.
Boiestown, new platform 160 feet.
Point Rouge, shelter provided.
River Glade, cattle pen built.
Renforth, shelter provided.
Boundary Creek, built cattle pen.
Salisbury, addition to baggage room and platform extended.
Bayfield, platform provided.
Petitcodiac, platform enxtended 120 feet.
Folleigh, platform extended 150 feet.
Browne's Crossing, shelter and platform provided.
Westchester, platform extended 140 feet.
Barney's River, platform extended 100 feet.
West Merigomish, platform extended 100 feet.
Piedmont, platform extended 75 feet.
Iona, platform extended 75 feet.
Flat Lands, platform extended 55 feet.
West River, platform extended 275 feet.
Marshy Hope, platform extended, 130 feet.
Charlotte, freight shed built.
St. Edwards, freight shed built.
St. George, freight shed built.
St. Cyrille, freight shed built.
Tracadie, improvements to station.
Kempt, a new station provided and platform.
Belledune, Church Road, a new station provided.
St. Helene, station enlarged and freight shed provided.
Millerton, platform extended.
Alba, platform extended 100 feet.
Chatham Junction, freight shed enlarged and platform extended.
McKay's Siding, station under construction.
L'Islet, station enlarged.
St. Pierre, piling ground enlarged.
Wallace Bridge, platform extended, and cattle pen provided.
Shubenacadie, platform extended 80 feet.
Petit Roche, addition to station.
Maccan, a new station under construction.

Pirate Harbour, a nine stall engine house was built, also a building erected for use of stores and offices.

Rockingham, platform extended.
King's platform for freight and passengers.
Lutz, platform for freight and passengers.

Union, plans and specifications were prepared for a new station and tenders asked.

New superstructure Restigouche bridge.

The three remaining spans of the superstructure of this bridge, that could not be erected previous to the close of the fiscal year 1903-04 have been erected and completed; also an entire new floor placed over the whole bridge.

To dredge and plast rock at deep water terminus, Halifax.

Dredging and blasting was carried on and 1,947 cubic yards were removed during the year.

Improvements at Little Metis and diverting public road.

The road was diverted at this place.

New station at Windsor, N.S.

Plans and specifications were prepared for station, tenders asked, and contract let, and work of construction is in progress now. Plans and specifications were prepared for an addition to the existing freight shed, making it just as large again as it is at present. Tenders were called for the work, but it was afterwards decided to change the location of shed, new tenders are to be asked for. In connection with the new location of shed it will be necessary to rearrange the tracks in the yard to some extent.

To increase accommodation at Amherst.

An engine house was provided, yard rearranged, additional siding requiring a large amount of grading, were put in. Improvements were made to the storage yard and cattle pen enlarged.

To increase water supply.

Under this vote, improvements were made at the following places along the line: Piedmont, Ste. Luce, Sacre Cœur, Ashton Junction, Avondale, Bayfield Road, Rivière Ouelle, Springhill Junction, Mitchell, Manseau.

A keystone driller was purchased for boring wells, also 16 automatic standard pipes, and water pipe provided for extending water service at the following places: Trois Pistoles, Ste. Anne, Drummondville, St. Fabien, Bathurst and L'Islet.

Increased accommodation at Amqui.

A contract was let for a new station, for which plans and specifications were prepared last year, and is now completed.

The platform was extended and some grading done for new yard, additional sidings were put in. The old station and freight shed were moved across the tracks and converted into a freight shed.

To increase accommodation at Stellarton.

A new passenger station, baggage room, office and stores building have been provided. The freight shed was removed from the site of the new passenger station to present location. The main 18″ sewer was extended 1,000 feet. Cement, sand and gravel for concrete platforms are part delivered on ground.

Engine house, machine shop, &c., at Rivière du Loup.

The 24 stall engine house was completed and supplied with steam boilers, steam pumps, air compressors, induced draft plant, hot blast system of heating, steam pipes, air and water pipes. Water service extended, additional sidings put in and grading done.

Engine house, &c., Chaudière Junction.

The 18 stall engine house which was under construction last year has been completed, and steam boilers, steam pumps, air compressor, induced draft plant, hot blast system of fan heating, steam pipes and air and water pipes have been installed.

The water service was extended and a contract let for the erection of an 80,000 gallon water tank, the work of construction is well under way. Additional sidings put in and some grading done in the new yard.

Increased accommodation at St. John.

The building for stores and offices, for which the contract was let last year, has been completed.

Plans and specifications were prepared for an extension of train shed and baggage room, and tenders called for.

The electric light and water service at the new engine house was extended. The east end of the yard was extended, additional tracks put in and some grading done. The steam boilers, steam pumps, air compressor, induced draft plant, hot blast fan system of heating steam pipes, air and water pipes were installed in new engine house, an ash pit was also provided at the new engine house.

Plans and specifications were prepared for the two overhead bridges for which tenders will be asked shortly.

To increase accommodation at Halifax.

The properties on upper side of Water street between North street and grain elevator, have been purchased. Work was completed in connection with installing electric plant in power house, North street, including wiring of Richmond sheds, yard and other buildings.

Concrete floors laid and other alterations were made to admit new boilers.

Considerable dredging was done at piers Nos. 8 and 9 and for new quay wall. The creosoted pile pier for which the contract was let last year has been completed.

Freight shed on this pier has also been completed.

Quay wall of cribwork—the lumber and round logs for the structure have been delivered and the work of construction is being done under contract, and is well advanced.

A new building was erected at North street for Pintsch gas plant. A second story was erected on pier No. 2 shed for increased accommodation for immigrants; an overhead gallery from No. 2 shed to the immigration building and across the yard between No. 2 shed and No. 3 shed, is under construction.

The old buildings were all removed from the land purchased last year between the elevator building and Cornwallis street; the work of grading for the extension of tracks on this property has been completed. Bills were prepared for a creosoted pile wharf and freight shed, and tenders were invited for the material.

To increase accommodation at Pictou.

Plans and specifications were prepared, tenders called for, and a contract let for a brick and stone passenger station, and the work of construction is now going on.

Plans and specifications were prepared, tenders called for, and a contract let for a new creosoted wharf. Creosoted piles and hard pine required for same have been ordered and part delivered on the ground. The Primrose mill property has been purchased for site of a 9 stall engine house for which plans and specifications have been prepared and tenders will be asked for shortly.

Improvements at North Sydney.

The construction of a new freight shed has been completed, the old freight sheds were moved from their existing location to the end of new shed and connected therewith; sidings required were put in and yard graded. Additional land was purchased for yard accommodation.

To increase accommodation at Moncton.

Plans were prepared for a second story to the brick car shop. The steel work was supplied by contract and erected by days labour.

The balance of the work is also being done by days labour.

Plans were prepared for a building to be used for stores and offices, but on account of proposed changes in other buildings the work of construction was not taken in hand. An extension was made to the existing freight shed and the unclaimed shed moved to new location. An underground oil storage with capacity of 7,500 gallons was installed at the Pintsch gas plant, for storage of oil for gas purposes. The fan system of heating for the extension of the two car shops has been installed.

To increase accommodation at Ste. Flavie.

The twelve-stall engine house and annex and turntable has been completed. The steam boilers, steam pumps, air compressor, induced draft plant, hot blast system of heating, steam pipes, air and water pipes, have been installed in the new engine house. The old engine house being unfit for further use was torn down.

A building for the use of stores and offices, was built by contract, an eighty thousand gallon water tank was erected. Improvements were made to the water service.

Yard was rearranged, additional tracks put in, and some grading done.

An addition was made to the ice house.

Towards improving ferry service, Strait of Canso.

Constructed a cribwork protection pier at Pt. Tupper; work was commenced September, 1904, and was finished December 27, 1904. This was very severely tested with ice this spring, and has proved a first-class job. The transfer ferry bridge pedestals at Mulgrave were strengthened.

A new coal hoist and trestle was built at Pt. Tupper.

Protection to Grand Narrows bridge.

The timber and round logs required for this work were purchased by the railway and have all been delivered, and the work of construction and filling with stone ballast is being done under contract.

Semaphores at stations.

Long magneto electric semaphores were installed at Trenton and Oxford Junction.

Portable plant for boring and cutting rails.

This plant has been provided.

Extension to Sydney Mines.

The grading for this work was commenced October 15, 1904, and discontinued November 15, on account of severe weather, and work was resumed May 15, and grading is being done as quickly as the nature of the work permits. On account of the Nova Scotia Steel and Coal Company obecting to the line running parallel to theirs between stations 28 and 60, the work on this part had to be discontinued. One concrete and three cedar culverts have been built and the work of grading is well advanced. Tenders have been asked for the grading and tracklaying on the North Sydney end.

Diversion of Line at St. Leonard Junction.

Part of the right of way has been paid for, and the balance has been expropriated. The grading was done by contract and completed—1·23 miles including sidings.

Diversion of line at Mitchell.

Part of the right of way has been paid for, and the balance has been expropriated. The work of grading was done by contract and completed—1·59 miles, including sidings.

To reduce curve at Birch cove.

The work is being done under contract and is well advanced.

Double-tracking parts of line.

The grading for double-tracking from Bedford bridge to Windsor Junction, 5·80 miles, including sidings, has been completed. The grading has been about half completed for double track between Stellarton and New Glasgow, 1·95 miles, including sidings. Between Bockingham and Bedford this work is under contract, and about 75 per cent completed, 5·08 miles, including sidings. Between Moncton and Painsec Junction, 7·48 miles, including sidings, and between Hadlow and Chaudière curve, 6·03 miles, including sidings. Surveys have been made, and plans are in course of preparation for receiving tenders.

The substructure of a three-span double-track bridge over the Sackville river at Bedford, N.S., is under contract, and some preparatory work done.

Steel rails and fastenings.

During the year, 30,734$^{2043}/_{2240}$ tons of 80-pound rails were purchased for relaying the track with heaviers rails.

Increased accommodation at Truro.

The land required for new engine house was purchased, and considerable grading and excavation done on the site of the building. A contract was let for a 30-stall engine house, and the work of construction of same is well advanced. A contract was also let for an extension to the freight shed, which has been completed. Plans and specifications were prepared for the boilers, induced draft plant, steam pumps, air compressor, hot blast system of heating, and pipe fittings, for the new engine house.

Improvements at Drummondville.

Plans and specifications were prepared, tenders asked for, and a contract let for a new brick and stone passenger station, and the work of construction is well advanced.

Land for site of new station has been bought and paid for.

Improvements at Rivière Ouelle.

The existing station was enlarged, a baggage room and a dwelling for agent provided.

Station at St. Moise.

A contract has been let for a station building, and work of construction is going on.

Increased accommodation at Antigonish.

A contract was let for a new station, and the work of construction is in progress now. The yard was rearranged and grading done.

To eliminate two road crossings at rail level at Cape Road crossing, Dorchester.

A subway was put in which consisted of excavation and two stone abutments on concrete foundations, with rolled 'I'-beam top.

Siding at St. Romuald.

This siding has been put in.

Improvements at Sackville.

Nothing was done under this vote during the year.

Improvements at Memramcook.

A piece of land was purchased for station site. A contract let and a new station erected, also a new station yard graded.

Improvements at Enfield.

Nothing was done under this vote.

Additional sidings and spur line.

The spur line to Powers' Mills, near St. Pacome station, 1·27 miles, has been well advanced, and is now in use since last December, although not yet entirely completed.

The spur line from Trois Pistoles bridge to Prince's Mills was under construction during the year but was not completed.

I have the honour to be, sir,
Your obedient servant,

W. B. MACKENZIE,
Chief Engineer.

D. POTTINGER, Esq.,
General Manager, Government Railways.

INTERCOLONIAL RAILWAY.

OFFICE OF THE ENGINEER OF MAINTENANCE,
MONCTON, N.B., August 31, 1905.

SIR,—I have the honour to submit the report of the Maintenance of Way and Works Department for the year ending June 30, 1905.

TRACK.

During the year 118·20 miles of 56, 58, 67, 80 and 110-pound rails were taken up and 63·91 miles of 56, 58, 67, 80 and 110-pound rails were relaid.

TIES.

During the year 730,451 ordinary ties, and 250 sets of switch ties were put in.

BALLASTING.

During the year 109·62 miles of track was ballasted, using 149,551 cubic yards of gravel, and 14,889 cubic yards of ashes and cinders.

SWITCHES AND SEMAPHORES.

Distant electric semaphore signals were erected at the following stations:—

Hampton	1	Richmond	1
Marshy Hope	2	Heatherton	2
Halifax, D.W.T.	1	Pompquet	2
Tracadie	2	South River	2
Trenton	1	Chatham Junction	1
Chatham	1	Gibson	3
Jacquet River	1	St. Moise	1
St. Pierre	1	St. Pacome	2

Two hundred and eighteen new switches were installed during the year.

New telegraph signals were provided at the following stations:—

Fairview,
Gibson,
Bayfield,
Marysville,
Fredericton,
Cross Creek,
Boiestown,
Doaktown,
Rivière du Loup,
Blackville,
Chatham,
Chatham Junction,
Loggieville,
Nelson,
Kempt,
Amqui,
Salmon Lake.

Necessary repairs were made to all semaphores, switches and station telegraph signals, throughout the line.

SIDINGS.

During the year 2·59 miles of additional siding accommodation has been provided at different points on the line.

FENCE BUILT BY OUR OWN MEN.

21·11 miles of new Page wire, and 1:08 miles of second-hand barbed wire, were built at different points on the line.

Necessary repairs were made to fences throughout the line.

41·33 miles new Strathy wire fence built by contract.

SNOW FENCES.

There was built during the year, 40 rods of stationary snow fence, 8 feet high; 2,923 rods, 10 feet high; 123 rods, 12 feet high, and 1,457 rods of portable snow fence.

Necessary repairs were made to snow sheds and snow fences where required.

WHARFS AND TRESTLES.

Repairs.

St. John, top of ballast wharf.
St. John, coal shed trestle.
St. John, platform at long wharf.
Pt. du Chene, wharf.
Springhill, coal trestle.
Richmond, Halifax, coal trestle.

Richmond, Halifax, turntable.
Richmond, Halifax, pier No. 2.
Richmond, Halifax, pier No. 4.
Richmond, Halifax, pier No. 6.
Richmond, Halifax, buffer, pier No. 4.
Richmond, Halifax, pier No. 3.
Richmond, Halifax, pier No. 8.
Truro, coal trestle.
D.W.T., Halifax, fenders.
Pictou, wharf.
Pictou, copper crown trestle.
Merigomish, cribwork, approach to bridge.
Mulgrave, wharf.
North Sydney, wharf.
Point Tupper, dock.
Penniac, retaining wall.
Cross Creek, wharf and trestle, cribwork protection.
Chatham, wharf.
Newcastle, coal trestle.
Dalhousie, wharf.
Rivière du Loup, trestle.
Lévis, cribwork.
Lévis, wharf.
Hadlow, Princess pier, wharf.

New Work.

St. John, mooring post at ballast wharf.
Halifax, shed, pier No. 2.
Sandy Cove, cribwork in siding.

Alterations.

Richmond, coal trestles.

BRIDGES AND CULVERTS.

Repairs.

St. John, top of Wall street bridge.
Nauwigewauk, culvert.
Salmon River, bridge.
St. John, Jardine's bridge.
Hall's Creek, bridge.
Dorchester street, St. John, foot bridge.
Portage Ballast, Pit Branch, bridge.
Portage Ballast, Pit Branch, 3 culverts.
Fort Lawrence, bridge.
Nappan, overhead bridge.
Nappan, culvert.
Between Maccan and Truro, culverts.
Wentworth, culvert.
Greenville, culvert.
Thomson, culverts.
Graham's, 1 mile west of, culvert.
Graham's, ¾ mile west of, culvert.

Graham's, ½ mile west of, culvert.
Milford, yard, culvert.
Enfield, culvert.
Alton, ½ mile west of, culvert.
Brown's Crossing, culvert.
Graham's, culvert.
Steven's Siding, culvert.
Brookfield, culvert.
Windsor Junction, culvert.
Malcolm Siding, culvert.
Elmsdale, culvert.
Shubenacadie, bridge.
Alton, bridge.
Glengarry, bridge, Chisholm's Brook.
Richmond, culvert.
Conn's Mills, bridge top.
Canfield, bridge top.
River John, bridge top.
Tatamagouche, culvert.
McKay's Bridge, bridge top.
Benjamin's, bridge top.
Gasse's Bridge, bridge top.
West River, bridge.
Denmark, culvert.
River John, culvert.
Sylvester, culvert.
Lyon's Brook, 2 culverts.
Tatamagouche, bridge top.
Pictou, culvert.
New Glasgow, bridge.
Dewar's, bridge.
South River, culvert.
Sutherland's River, bridge.
Linwood, Stewart's bridge.
Monastery, bridge.
Pine Tree, bridge.
East River, bridge.
Gillis' Cove, bridge top.
Alba, bridge top.
McKinnon's Harbour, bridge top.
Jamesville, bridge top.
Christmas Island, bridge top.
Grand Narrows, East, culvert.
Cooper's Pond, bridge.
McKenzie's Siding, culvert.
Shenacadie, West, culvert.
Shenacadie, bridge top.
Shenacadie, culvert.
Shenacadie, 2 miles East, culvert.
Beaver Cove, bridge top.
Beaver Cove, 1 mile east, bridge top.
Boiesdale, 2 miles west, culvert.
Boiesdale, bridge top.
Barrachois, 1 mile west, bridge top.
Campbell's Bridge, bridge top.

Leiche's Creek, West, bridge.
Fresh Water Cove, new top and cribwork.
Munroe's, bridge top.
Orangedale, bridge top.
Grand Narrows, culvert.
Iona Bluffs, culvert.
Grand Narrows, rest pier.
Barrachois, 2 culverts.
Estmere, bridge.
West Bay Road, culvert.
Boiestown, bridge.
Penniac, bridge.
Zionville, culvert.
McKenzie, bridge.
Nelson Hollow, bridge.
Doaktown, bridge.
Blackville, bridge.
Durham, bridge.
Barnaby River, culvert.
Adamsville, culvert.
Indiantown Branch, culverts.
Coal Branch, culvert.
Cocaigne River, bridge.
Buctouche River, bridge.
Berry's Mills, culvert.
Dalhousie Junction, culvert.
Jacquet River, bridge.
Section 67, bridge.
Section 62, bridge.
Section 55, bridge.
Section 66, culvert.
Dalhousie Branch, culvert.
Section 72, culverts.
Section 65, culverts.
Section 64, bridge.
Section 68, culvert.
Restigouche River, culvert.
Gordon's Brook, bridge.
St. Alexis, bridge.
Indian Brook, bridge.
Tobogote, bridge.
St. Simon, bridge.
Otto Brook, bridge.
St. Fabien, culvert.
St. Eloi, culvert.
Isle Vert, culvert.
St. Simon, culvert.
St. Anaclet, culvert.
St. Joseph, bridge.
Between St. Romuald and Chaudière Curve, culvert No. 12.
St. Jean, Port Joli, west of, culvert No. 4.
Old Lake Road, culvert.
St. Henri Branch, culverts.
Ste. Anne, bridge.
St. Paschal, culvert.

Trois Saumons, bridge.
St. Jean, Port Joli, bridge.
St. Jean, Port Joli, culvert.
Ste. Louise, bridge.
Section 225, culvert.
Section 119, culvert.
St. François Station, west of, culvert.
St. Perpetue, culvert,
Forestdale, culvert.
St. Germain, culvert.
St. Leonard, culvert.
St. Eugene, culvert.
St. Wenceslas, east of, culvert.
Forestdale, bridge.
Nicolet, culvert.
Drummondville, west of, culvert.
Drummondville Yard, culvert.

MASONRY WORK DONE.

Repairs.

St. John, Wall street bridge.
Apohaqui, culvert.
Sussex, culvert.
Sussex, culvert.
Moncton, ash pits in yard.
Sackville, bridge pier.
Amherst, ¼ mile east of, beam culvert.
Amherst, subway.
Calhoun's, beam culvert.
Bulmer's Siding, culvert.
Westcock Siding, cattle guard.
Little Forks, bridge.
Little Forks, culvert.
Little Forks, ½ mile east of, box culvert.
Little Forks, ½mile east of, open culvert.
Little Forks, ½ mile west of, beam culvert.
Springhill Junction, yard, box culvert.
Thomson, 2 miles west of, pipe put in.
Thomson, 1 mile east of, box culvert.
Thomson, 1¼ mile east of, box culvert.
Thomson, 1½ miles east of, box culvert.
Thomson, ¼ mile east of, arch culvert.
Wentworth, open culvert.
Londonderry, box culvert.
Truro, 3 miles south of, beam culvert.
Brookfield, yard, box culvert.
Brookfield, station, box culverts.
Brookfield, east of, meadow bridge.
Brookfield, 1 mile east of, culvert.
Brookfield, 1 mile west of, culvert.
Graham's Siding, beam culvert.
Graham's Siding, ½ mile west of, culvert.
Graham's Siding, ¾ mile west of, culvert.
Graham's Siding, 1 mile west of, culvert.

Shubenacadie, bridge.
Milford, culvert.
Milford, station yard, culvert.
Elmsdale Tank, box culvert.
Elmsdale Tank, west of, box culvert.
Enfield, station, culvert.
Alton Tank, ½ mile west of, box culvert.
Between Windson Junction and Wellington, beam culvert.
Steven's Siding, west of, beam culvert.
Windsor Junction, tank, culvert.
Malcolm's Siding, culvert.
Bulmer's Crossing, culvert.
Kinsack, 1 mile east of, culvert piping.
Riversdale, east of, cattle guard.
Riversdale, east of, bridge seat.
Lansdowne, ½ mile east of, culvert.
Glengarry, culvert.
Lorne, ½ mile east of, culvert.
Lorne, 1¼ miles east of, culvert, piping.
Lorne, 1 mile east of, culvert.
Meadow Siding, box culvert.
New Glasgow, Harris' crossing.
New Glasgow, culvert.
New Glasgow, ¾ mile west of, bridge pier.
West Merigomish, culvert.
Merigomish, bridge.
Merigomish, crossing.
Piedmont, culvert.
Trenton, Cameron's crossing.
Trenton, culvert.
Ottawa Brook, trestle.
Ottawa Brook, bridge.
Grand Narrows, bridge.
Leitches' Creek, bridge.
Ball, bridge.
Sydney River, bridge.
French River, bridge.
Tatamagouche, bridge.
Horne's Brook, bridge.
Middle River, bridge.
Kear's Gulch, bridge.
Jamesville, east bridge.
Jamesville, west bridge.
Walker's Gulch, bridge.
Campbellton, 2¾ miles west of, culvert.
Campbellton, 3 miles west of, box culverts.
Campbellton, 3½ miles west of, culverts.
Moffatt's ½ mile west of, Gordon's bridge.
Ste. Flavie, 2 miles east of, Arch culvert.
St. Alexandre, west of, culvert.
St. Alexandre, east of, culvert.
St. Francois, west, cattle guards.
St. Francois, west, culvert.
St. Francois, station ½ mile west, culvert.
St. Charles Junction, ½ mile west of, culvert.

St. Henri, station, culvert.
St. Henri, west of, culvert.
St. Henri, 2 miles west of, bridge.
St. Charles Station, culverts.
St. Jean Chrysostome, east of, cattle guard.
Nicolet, bridge.
Drummondville, bridge.

PAINTING.

Bridges.

Front Creek.
Bridge No. 12, east of Truro.
Pictou Harbour.
Middle River.
Dewar's, east of Avondale station.
No. 6 Bridge, east of Avondale station.
Antigonish.
Pomquet.
South River.
Merigomish.
New Mills,
Charlo,
Benjamin River,
Benjamin River, millrace,
Belledune,
Mill Creek,
Bartibogue,
Elm Tree,
South Miramichi,
Debert,
East of Green Point flag station,
Truro, overhead,
Truro, Mud Creek,
Salmon River,
North River,
Belmont River,
Jordon's,
Elmsdale,
Lydia Brook,
Kouchibouche,
Barnaby River, second crossing,
Barnaby River, third crossing,
Rivière du Loup,
Little Metis,

BUILDINGS AND PLATFORMS.

Repairs.

St. John, coal shed.
St. John, train shed.
St. John, No. 3 shed..
St. John, loading platform, ballast wharf.
St. John, tenement house No. 4.

St. John, Irving House.
St. John, loading platform.
St. John, water meter house.
St. John, No. 9 shed, long wharf.
St. John, office, loading platform.
St. John, No. 1 and 2 freight sheds.
St. John, round house.
St. John, coal shed chute.
St. John, office, No. 4 shed.
St. John, floor, No. 9 shed.
St. John, cellar, new freight house.
St. John, freight shed No. 7.
St. John, freight shed No. 2.
St. John, tool house.
St. John, station platform.
St. John, loading platform.
Brookville, station platform.
Brookville, platform railing.
Brookville, station steps.
Torryburn, station.
Riverside, station.
Rothesay, station.
Rothesay, platform.
Armstrong's, shelter.
Quispamsis, platform.
Quispamsis, freight house.
Quispamsis, hand-car house.
Model Farm, sheathed w.c.
Jubilee, station.
Jubilee, platform.
Jubilee, flooring.
Nauwigewauk, platform.
Nauwigewauk, cattle platform.
Nauwigewauk, station.
Nauwigewauk, tool house.
Lakeside, platform.
Hampton, station roof.
Hampton, platform.
Passekeag, platform.
Bloomfield, platform.
Bloomfield, station.
Norton, platform.
Norton, tool house.
Secord's, platform.
Apohaqui, platform.
Apohaqui, station.
Sussex, platform.
Sussex, coal shed.
Sussex, platform.
Sussex, engine house, smoke stacks.
Sussex, loading platform.
Sussex, tool house.
Sussex, freight house.
Sussex, station.

Plumweseep, sheathed w.c.
Penobsquis, platform.
Penobsquis, station.
Penobsquis, sheathed waiting room.
Penobsquis, loading platform.
Anagance, platform.
Anagance, station roof.
Petitcodiac, freight house.
Petitcodiac, platform.
Petitcodiac, station.
Petitcodiac, station office.
Petitcodiac, station roof.
River Glade, cattle pen.
River Glade, station.
Salisbury, loading platform.
Salisbury, baggage room.
Salisbury, station.
Salisbury, dwelling and station.
Boundary Creek, station.
Boundary Creek, cattle pen.
Moncton, ice house.
Moncton, round house roof.
Moncton, brick car shop.
Moncton, machine shop.
Moncton, trackmaster's old office.
Moncton, round house floor.
Moncton, ventilator, Pintsch gas house.
Moncton, coal bin transfer shed.
Moncton, fan house, brick car house.
Moncton, temporary lumber shed.
Moncton, station platform.
Moncton, check office.
Moncton, windows, freight shed.
Moncton, freight house platform.
Moncton, shingle roof of paint shop.
Moncton, government cottages.
Moncton, platform between cattle pen and transfer shed.
Moncton, sheathed cellar, cottage No. 6.
Moncton, w.c. for No. 4 cottage.
Moncton, mixing room, paint shop.
Moncton, door, old round house.
Moncton, shed for new planer.
Moncton, battery stands, basement of rest house.
Moncton, boiler shop floor.
Moncton, motion shop floor.
Moncton, paint shop floor.
Moncton, erecting shop floor.
Moncton, platform, east end paint shop.
Moncton, tube shop roof.
Humphrey's, shelter.
Dorchester Road, platform.
Shediac, freight house.
Shediac, platform.
Point du Chene, station.
Point du Chene, round house.

Painsec Junction, platform.
Painsec Junction, station.
Calhoun's, station doors.
Memramcook, station windows.
College Bridge, station and platform.
Upper Dorchester, platform.
Dorchester, station.
Sackville, station.
Aulac, platform.
Amherst, platform.
Amherst, bond room.
Amherst, freight house.
Amherst, cattle pen.
Amherst, station.
Nappan, station.
Athol, station.
Springhill Junction, platform.
Springhill Junction, station and freight house.
River Philip, platform.
Oxford Junction, platform.
Oxford Junction, coal sluice at pump house.
Wentworth, platform.
Debert, cattle pen.
Debert, coal shed.
Debert, station and platform.
Belmont, station cellar.
Belmont, platform.
Truro, round house doors.
Truro, watchman's shanty.
Truro, McDonald's coal trestle.
Truro, restaurant door.
Truro, station, spout, flag pole and roof.
Truro, west coal drop.
Truro, Smoke Jack oil stove.
Brookfield, freight house.
Shubenacadie, freight house.
Milford, covering well.
Elmsdale, freight house door.
Wellington, station.
Bedford, station roof.
Fairview, station and kitchen.
Richmond, oil house.
Richmond, floor, power house.
Richmond, shed No. 8.
Richmond, blacksmith shop.
Richmond, watchman's shanty.
Richmond, platform.
Richmond, cattle pen.
Richmond, ash pit timbers.
Richmond, fitting shop, floors.
Richmond, roof of tenement house, W. C. Ross.
Richmond, coal trestle chute.
Richmond, tool shanties.
Richmond, gates of cattle shed.
Richmond, floor, machine shop.

Richmond, machine shop.
Richmond, wall of round house and roof.
Richmond, coal shed.
Richmond, station.
Richmond, car shop and roof.
Halifax, North street, retaining wall.
Halifax, North street, concrete walks.
Halifax, North street, metal sheathing.
Halifax, North street, baggage room doors.
Halifax, North street, boiler room, power house.
Halifax, D.W.T., shed, pier No. 2,
Halifax, D.W.T., sheds, 1, 2, 3 and 4.
Halifax, D.W.T., customs office.
Halifax, D.W.T., freight shed.
Halifax, D.W.T., metal sheathing.
Halifax, D.W.T., grain elevator, sheathing.
Halifax, D.W.T., immigration building.
Halifax, D.W.T., immigration building, overhead.
Halifax, D.W.T., passage.
Halifax, D.W.T., counter for office.
Halifax, D.W.T., freight house.
Halifax, platform.
Halifax, shelving, P. S. & D. car department.
Halifax, concrete foundation, electric plant.
Halifax, round house, doors of power house.
Halifax, ash pits.
Halifax, roof of wash house.
Halifax, book case, office of D.F.A.
Halifax, roof and doors, grain elevator.
Halifax, dynamo room, electric plant.
Halifax, coach awning shed.
Halifax, skylights, train shed.
Halifax, shunters' shanties.
Halifax, D.A.R. freight shed.
Halifax, power house.
Riversdale, platform and dwelling apartments.
West River, station.
Glengarry, loading platform.
Hilden, loading platform.
Eureka, window in office.
Alton, station.
Waverley, platform.
Waverley, freight shed.
Tuft's Cove, platform.
Dartmouth, passenger platform.
Dartmouth, station.
Dartmouth, engine house.
Westville, station platform.
Westville, agent's dwelling, cellar.
Westville, freight shed.
Westville, station, shelving.
Westville, platform.
Sylvester, platform.
Lockbroom, station.
Pictou, engine house.

Pictou, freight shed, office.
Pictou, baggage room.
Pictou, ice house.
Pictou, station.
Scotsburn, storm windows.
Meadowville, station flue.
Tatamagouche, storm windows.
Malagash, storm windows.
Wallace Bridge, station platform.
Pugwash Junction, platform.
Pugwash, smoke jack, engine house.
Oxford, agent's dwelling.
Oxford Junction, coal shed.
Stellarton, platform.
Stellarton, round house.
Stellarton, car shop.
Stellarton, car shed.
Stellarton, station.
New Glasgow, station platform.
New Glasgow, loading platform.
New Glasgow, platform, George street crossing.
New Glasgow, station.
New Glasgow, freight shed.
New Glasgow, ice house.
New Glasgow, w.c.
West Merigomish, freight shed.
Merigomish, station.
Merigomish, w.c.
Piedmont, station.
Avondale, station.
Barney's River, station.
Marshy Hope, platform.
Marshy Hope, station.
James River, station.
Brierly Brook, platform.
Antigonish, platform.
Antigonish, freight shed.
Antigonish, cattle pen.
Antigonish, station.
South River, platform.
South River, station.
Pomquet, coal shed.
Pomquet, station.
Bayfield, coal house.
Tracadie, platform.
Monastery, platform.
Linwood, station.
Harbour au Bouche, station.
Pirate Harbour, rest house.
Mulgrave, tool house.
Mulgrave, platform.
Mulgrave, cattle pen.
Pictou Landing, platform.
Point Tupper, baggage room.
Hawkesbury, platform.

McIntyre's Lake, platform.
Cleveland, platform.
Cleveland, tool house.
West Bay Road, station.
West Bay Road, tool house.
Orangedale, station.
Iona, station.
Grand Narrows, station.
Grand Narrows, platform.
Shenacadie, station.
Boiesdale, station floor.
Boiesdale, platform.
Georges River, station floor.
Georges River, platform.
North Sydney Junction, platform.
North Sydney Junction, station and floor.
North Sydney, shelter.
North Sydney, platform.
North Sydney, station and floor.
North Sydney, car house.
North Sydney, rest car.
North Sydney, freight shed.
Leitche's Creek, station.
Leitche's Creek, freight shed.
Sydney, freight shed.
Sydney, platform.
Sydney, coal bin.
Sydney, track office.
Sydney, bonded warerooms.
Sydney, cattle pen.
Sydney Mines, tool box.
Loggieville, hardwood floor in office and waiting room.
Loggieville, engine house.
Chatham, coal shed.
Chatham, station.
Chatham, platform.
Blackville, station.
Doaktown, coal shed.
Marysville, freight shed.
Fredericton, freight shed.
Gibson, platform.
Berry's Mills, platform.
Berry's Mills, coal shed.
Berry's Mills, section foreman's house.
Gallagher's Ridge, platform.
Canaan, station.
Coal Branch, w.c.
Adamsville, platform.
Harcourt, platform.
Harcourt, dwelling apartments.
Harcourt, loading platform.
Kent Junction, platform.
Rogersville, platform.
Rogersville, freight shed platform.
Acadiaville, freight shed.

Acadiaville, loading platform.
Barnaby River, platform.
Chatham Junction, coal shed.
Chatham Junction, freight shed.
Chatham Junction, platform.
Derby Junction, platform.
Derby Junction, loading platform.
Millerton, loading platform.
Millerton, freight shed and platform.
Millerton, station.
Indiantown, station.
Newcastle, platform.
Newcastle, oil house.
Newcastle, freight shed.
Newcastle, coal shed.
Newcastle, round house.
Beaver Brook, station.
Beaver Brook, platform.
Red Pine, station.
Bathurst, station.
Bathurst, coal shed.
Bathurst, store room.
Beresford, station.
Petit Roche, station.
Belledume, loading platform.
Jacquet River, station.
Nash's Creek, station.
New Mills, freight house, platform.
Dalhousie Junction, station.
Dalhousie Junction, freight house and platform.
Dalhousie, wharf, freight house.
Dalhousie, engine house.
Craig's platform, shelter.
Eel River, station.
Miller's, platform.
Hachey's, platform.
Campbellton, superintendent's house.
Campbellton, smoke jacks, engine house.
Campbellton, ash pit.
Campbellton, car and machine shop.
Campbellton, coal shed and roof.
Campbellton, engine pits in engine house.
Campbellton, cellar, station.
Campbellton, engine house.
Campbellton, freight shed platform.
Campbellton, Canadian express office.
Campbellton, superintendent's office.
Campbellton, covering for track scale.
Campbellton, coal boxes.
Campbellton, cattle pen.
Campbellton, freight shed doors.
Campbellton, air hoist, engine house.
Campbellton, shelves in freight shed.
Campbellton, locomotive foreman's office.
Campbellton, wood shed.

Campbellton, drain from ash pit.
Campbellton, doors, ice house.
Campbellton, station platform.
Campbellton, gent's w.c.
Flat Lands, station.
Flat Lands, freight shed.
Metapedia, tank.
Metapedia, foreman's house.
Metapedia, agent's house.
Metapedia, station.
Metapedia, freight shed roof.
St. Alexis, office in station.
St. Alexis, station kitchen.
Mill Stream, platform.
Mill Stream, station.
Mill Stream, hand-car house.
Mill Stream, station floors.
Glen Emma, car house.
Assametquaghan, platform.
Assametquaghan, tank.
Assametquaghan, station windows.
Causapscal, platform.
Causapscal, storm doors, station.
Causapscal, station.
Salmon Lake, station drain.
Salmon Lake, platform.
Salmon Lake, coal shed.
Salmon Lake, hand-car house.
Salmon Lake, station windows.
Amqui, platform.
Amqui, freight shed.
Amqui, station.
Cedar Hall, porch for station.
Cedar Hall, tank.
Cedar Hall, hand-car house.
Cedar Hall, station platform.
Sayabec, station.
Sayabec, station porch.
St. Moise, platform.
St. Moise, freight shed.
Kempt, station drain.
Kempt, platform.
Kempt, station cellar.
Little Metis, snow sheds.
St. Octave, platform.
St. Octave, foreman's house.
St. Octave, station sewer.
St. Octave, hand-car house.
St. Octave, porch, foreman's house.
Ste. Flavie, coal shed.
Ste. Flavie, station.
Ste. Luce, station.
St. Anaclet, station.
Rimouski, station.
Rimouski, platform.

Bic, station.
Bic, freight house.
St. Fabien, station.
St. Simon, station.
Trois Pistoles, platform.
Isle Verte, station.
Isle Verte, tank.
St. Arsene, platform.
Cacouna, station.
St. Alexandre, cattle pen.
St. Helene, cattle pen.
Dessaint, station, sheating.
St. Paschal, platform.
Ste. Louise, telegraph table.
Ste. Louise, kitchen.
Elgin Road, platform.
St. Jean Port Joli, platform.
Trois Saumons, platform.
L'Islet, platform.
Montmagny, platform.
Montmagny, cattle pen.
St. Francois, cattle pen.
St. Valier, station, smoke jack.
St. Valier, pump house.
St. Pacome, platform.
St. Charles Junction, section house.
St. Charles Junction, coal house.
St. Charles Junction, slides for coal house.
St. Charles Junction, old car top shelter.
St. Charles Junction, kitchen and office.
St. Henri Junction, platform.
Harlaka, station.
St. Joseph, station platform.
St. Joseph, station.
Lévis, roof tenement house, chapman property.
Lévis, district superintendent's house.
Lévis, platform, old station.
Lévis, freight shed floor.
Lvéis, house No. 281, Chapman property.
Lévis, woodshed, tenement house.
Lévis, baggage room.
Lévis, Coal box, baggage room.
Lévis, switchman's shanty.
Lévis, cupboards, station.
Lévis, freight office.
Lévis, sheathing old store room.
Lévis, freight shed, partition.
Lévis, tool box, boiler room.
Lévis, chief despatcher's office, making desk.
Lévis, verandah, station.
Lévis, platform,freight shed.
Hadlow, tenement house No. 280.
Hadlow, smoke jacks at shops.
Hadlow, engine house pits.
Hadlow, tenement.

St. Romuald, platform.
Chaudière Curve, platform.
Chaudière Curve, agent's dwelling.
Chaudière Curve, sheathing and plastering.
Chaudière Curve, tenement house.
Chaudière Junction, transfer shed.
Chaudière Junction, ash and coal trestle, engine house.
Chaudière Junction, doors, engine house.
Chaudière Junction, engine house, office.
Chaudière Junction, office, store room.
Chaudière, pump house.
St. Appolinare, porch.
St. Appolinare, freight house.
St. Appolinare, platform.
Laurier, agent's dwelling.
Laurier, platform.
Villeroy, platform.
Villeroy, porch.
Manseau, section house.
Forestdale, cupboard in station.
Lemieux, station.
Lemieux, platform.
Daveluyville, platform.
Daveluyville, freight shed.
Daveluyville, coal shed.
Daveluyville, w.c.
Acton Junction, telegraph table, station
Acton Junction, platform.
Acton Junction, extended drain.
St. Wenceslas, station.
St. Wenceslas, freight shed.
St. Leonard Junction, platform.
St. Leonard Junction, coal car.
St. Leonard Junction, car house.
St. Leonard Junction, tool house.
St. Monique, station.
St. Monique, w.c.
St. Monique, platform.
Nicolet, station.
Nicolet, platform.
St. Perpetue, platform.
St. Perpetue, car top.
Mitchell, platform.
Mitchell, w.c.
Blake's, platform.
Blake's, drain.
Blake's, freight shed.
Blake's, station.
Carmel, station.
Carmel, freight shed.
St. Cyrille, drain.
St. Cyrille, station.
St. Cyrille, freight shed.
St. Cyrille, platform.
Drummondville, station.

Drummondville, engine house.
Drummondville, drain.
Drummondville, coal trestle.
St. Germain, car house.
St. Germain, freight house.
St. Germain, drain.
Duncan, platform.
Bagot, freight shed.
Bagot, tool house.
Charlotte, platform.
St. Edward, platform.
St. George, platform.
St. Rosalie, station.
St. Rosalie, stock pen.
St. Rosalie, platform.
St. Rosalie, w.c.

BUILDINGS AND PLATFORMS.

New Work.

Model Farm, coal house.
Secord's, flag station.
Sussex, tool house.
Plumweseep, coal house.
Moncton, new door, round house.
Moncton, new door, round house.
Moncton, cattle pen and platform.
Moncton, platform, paint shop.
Moncton, w.c., yardmaster's office.
Moncton, platform, stores department.
Moncton, platform from check office to Bridge street.
Irishtown Road, platform.
Harrisville, platform.
Amherst, freight office.
Amherst, baggage room.
Shubenacadie, loading platform.
Rockingham, coal house.
Halifax, Pintsch gas building.
Halifax, D.W.T., w.c. on low level.
Halifax, D.W.T., second story on shed, pier No. 2.
Van Buskirk's Road, platform.
Hansford Siding, loading platform.
Malagash, pump house.
Alma, station office.
New Glasgow, addition to baggage room.
Pomquet, tool house.
Estmere, shelter.
Grand Narrows, oil house.
Cleveland, shelter.
Boiestown, station platform.
Cross Creek, station platform.
Newcastle, blacksmith shop.
Campbellton, porch for station agent.
Sandy Bay, shelter.

Amherst, tool house flue.
Athol, tool house flue.
Springhill Junction, freight shed and baggage room foundations.
Londonderry, tank flue.
Greenville, station flue.
New Glasgow, station walls.
Belmont, cedar wall concreted.
Mitchell, station.

PAINTINGS.

Nauwigewalk, station.
Rothesay, station.
Renforth, shelter.
Apohaqui, station.
Sussex, tank.
Sussex, crane.
Sussex, hand-car house.
Amherst, baggage room.
Amherst, freight office.
Glengarry, station.
Pugwash, station.
Pugwash Junction, station.
Pugwash Junction, tank.
Tatamagouche, tank.
Oxford, tank.
Avondale, station.
Pomquet, station.
South River, station.
Heatherton, station.
Merigomish, station roof.
Antigonish, tank.
Piedmont, station.
New Glasgow, baggage room.
Merigomish, station, waiting room and office.
Campbellton, station.
Campbellton, superintendent's house.
New Mills, station.
Bathurst, station.
Antigonish, station, freight shed and baggage room.
Mulgrave, station, freight shed and baggage room.
Chatham Junction, freight house.
Moncton, east end freight house.
Moncton, electric station.
Truro, freight shed roof.
Truro, tool house.
Berry's Mills, station.
Berry's Mills, trackman's house.
Wellington, station.
Windsor Junction, station.
Bedford, station.
Shubenacadie, station.
Beaver Brook, station.
Fairview, station.
Model Farm, station.

Norton, station.
Hampton, station.
Bloomfield, station.
Jubilee, station.
Brockville, station.
Bagot, station, freight shed and w.c.
L'Islet, station and part of freight house.
Hadlow, buildings Nos. 253, 257, 258, 259, 261 and 266.
St. Paschal, station and freight house.
Ste. Louise, station and freight house.
St. Jean Port Joli, station.
Isle Verte, station.
St. Arsene, station.
Cacouna, station
Bic, station.
St. Fabien, station.
St. Simon, station.
Sacre Cœur, station.
Causapscal, station and sectionman's house.
Mill Stream, station and section foreman's house.
St. Moise, station and sectionman's house.
Sayabec, station.

GENERAL.

New buffers were made and set up at different points on the line, where required and repairs made where necessary.

Repairs were made to crossings at various points on the line, where required.

Gates and cattle guards were repaired throughout the line, where necessary.

New glazing was done and glass put in and necessary repairs made, where necessary.

A number of old box car tops were repaired and fitted up during the year for hand-car and tool houses.

Ladders for buildings and semaphores were provided, where required, along the line.

Outhouses and approaches to public road crossings were whitewashed, where necessary.

Turn tables have been repaired, throughout the line, where required.

Necessary painting has been done to semaphores, switches and telepraph signals, throughout the line, where required.

Necessary repairs were made to hand-cars, trolleys, baggage trucks and wheelbarrows, throughout the line.

I have the honour to be, sir,
Your obedient servant,

T. C. BURPEE,
Engineer of Maintenance of Ways and Works.

D. POTTINGER, Esq.,
General Manager, Government Railways,
Moncton, N.B.

SESSIONAL PAPER No. 20

INTERCOLONIAL RAILWAY OF CANADA.

MONCTON, N.B., August 28, 1905.

DEAR SIR,—In reply to your letter of July 6, I send you herewith the annual report of the operations of this department for the fiscal year ending June 30, 1905.

Yours truly,

G. R. JOUGHINGS.
Supt. Motive Power.

D. POTTINGER, ESQ.,
General Manager,
Moncton, N.B.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE MECHANICAL ACCOUNTANT.

MONCTON, N.B., August 21, 1905.

SIR,—I beg to submit the following report of the operations of the mechanical department for the fiscal year ended June 30, 1905.

A. Statement showing the number of locomotives and various classes of cars.

B. Statement showing the locomotives and car mileage and the average number of passenger and freight cars hauled per mile run by engines.

C. Abstract of locomotive returns.

D. Statement of the cost of locomotive power for each month during year.

E. General statement of the expenses of the mechanical department. Also a summary of the principal work done in the locomotive and car shops at Moncton and in the shops at Rivière du Loup and Richmond.

During the year the following rolling stock was purchased on capital and revenue:—

On capital, to increase the equipment: 10 freight locomotives, consolidation type; 12 passenger locomotives, Pacific type; 10 first-class sleeping cars, 4 second-class sleeping cars, 4 parlour cars, 2 dining cars, 20 first-class passenger cars, 4 postal and smoking cars, 150 box cars, 60,000 capacity.

On revenue, to replace smaller type: 3 shunting locomotives, 2 first-class passenger cars, 106 box cars, 200 platform cars, 250 hopper cars.

The following rolling stock was rebuilt in the shops at Moncton: 4 second-class passenger cars, 5 box cars, 60,000 capacity, to replace smaller type; 35 platform cars, 1 auxiliary car, 4 snow-ploughs, 1 flanger.

The following rolling stock was taken over with the Canada Eastern Railway: 7 locomotives, 4 second-class passenger cars, 46 platform cars, 2 auxiliary cars, 4 snow-ploughs, 1 flanger.

This rolling stock is in rather poor condition and will require repairs and to be fitted with air brakes and couplers, and at no distant date, it will all require to be replaced with rolling stock of more modern type.

I have the honour to be, sir,

Your obedient servant,

J. J. WALKER,
Mechanical Accountant.

G. R. JOUGHINS, ESQ.,
Superintendent Motive Power,
Moncton, N.B.

The following work was done in the shops at Moncton:—

Locomotive shops: 114 locomotives received general, 30 received heavy and 16 received specific repairs; 1 new fire box, 5 tube sheets, 6 side sheets and 2 half side sheets were made and applied. 28,350 tubes were repaired and put in boilers, 123 boilers were tested, 250 smoke stacks were made, 32 smoke box doors and rings were made and applied, 12 tenders were rebuilt after having been in collision, 1 new locomotive boiler and 2 small boilers for water service were built, 1 new 4,000 gallon

tank for Pintsch gas was made, 1 new 10,800 gallon portable tank was made, 4 new steel tender frames were made, 11,250 stay bolts were put in fire boxes, 1,036 driving wheel tires and 1,065 engine, truck and tender wheels were turned off, 1 new main rod, 4 side rods, 21 new crank pins, 10 new cylinders, 11 new cabs and 70 new pilots were made, 8,432 studs were screwed, 155,500 pounds of nuts were tapped, 20 smoke boxes were patched and 15 new ones were made and applied, 1 new tender tank was made, 7 steel cabs were made, 75 fire boxes were patched, 31 new driving axles were turned and applied, 118 engines and tenders were painted, 438,000 bolts were threaded.

Blacksmith shop: 2,355,927 pounds of forgings, including 618,960 bolts were made.

Maintenance of way department: 354 new frogs made and 58 old ones were repaired.

Brass foundry: 314,030 pounds brass bearings were made; 50,234 pounds castings were made; 13,4444 pounds babbit metal was made; 22,901 pounds antimonial lead was made; 1,966 sets metallic packing were made.

Special work was done as follows:—

In the motion and turning shops, 7 of the new machines received were set up. The engine room was enlarged and a dynamo and electric plant installed to run the large rollers in the boiler shop.

In the brass-turning shop 3 of the new machines received were set up. There were 3 new testing machines for testing injectors, lubricators and Sewell heaters made and set up.

Two of the Westinghouse pumps were changed into test pumps for the purpose of testing boilers along the line.

Three gasoline tanks were built for heating tires.

All the steam apparatus in connection with the electric plant at Halifax was installed. Extensive alterations were made to the boilers in connection with the electric light.

A large amount of plumbing, &c., was done to station buildings along the line.

Extensive alterations were made to the Point du Chene engine house and pipes were run for the purpose of heating cars in the yard at that place.

All the dynamos were piped in the electric light plant at Moncton.

The station stoves over the whole line were either renewed or repaired.

In the pattern shop there were 500 new patterns made and improvements made to a large number of the old ones.

The boilers at the different points over the whole line were tested and repairs made where required.

The new coaling plant was put in operation in Moncton.

In addition to the above, the capacity of 9 tender tanks was increased by 1,000 gallons.

RIVIÈRE DU LOUP SHOPS.

Twenty-eight locomotives received general, 23 heavy, 26 light, and 38 specified, repairs; 18 fire boxes were patched, 34 boilers were retubed; 192 driving, 50 engine truck and 112 tender truck and car wheels were turned off; 2 side rods, 5 crank pins, 5 cabs, 18 pilots and 3 tender frames, were made and put in service; 53 engines were painted; 6,547 bolts were forged, 15,342 bolts were screwed; 4,564 studs were screwed.

RICHMOND SHOPS.

Thirteen locomotives received heavy, 6 light, and 94 specific, repairs; 11 fire boxes were patched; 23 boilers were tested; 86 driving tires were turned off; 360 engine truck, tender truck and car wheels were turned off; 16 crank pins, 10 pilots and 2 tender frames were made and put in service; 40,000 bolts were forged, 46,000 bolts were screwed; 1,200 studs were screwed; 14 engines and tenders were painted; 10 boilers were retubed.

WATER SERVICE.

This service has been maintained in efficient condition over the whole line.

CAR SHOPS.

The following rolling stock was rebuilt at Moncton: 5 box and 35 platform cars (the 5 box cars are 60,000 pounds capacity), 4 second-class passenger cars, 4 snow ploughs, 1 flanger and 1 auxiliary car.

Included in the rebuilt platform cars are 9 diamond flangers, which were rebuilt from condemned platform cars, and also 2 rotary plough feeders, known as 'Butterflies.'

The following cars received heavy repairs: 5 official, 1 parlor, 26 sleeping, 3 dining, 88 first-class, 40 second-class, 29 postal, 24 baggage, 21 second-class sleeping, 16 freight vans, 11 snow ploughs, 8 box flangers, 5 wing ploughs, 249 freight, 1 auxiliary, 3 diamond ploughs, 1 rotary plough, 1 steam crane, 2 tool.

The following received medium repairs: 5 box flangers, 6 wing ploughs and 5 snow ploughs.

The following cars received light repairs: 10 sleeping, 2 dining, 1 official, 34 first-class, 17 second-class, 6 second-class sleeping, 7 postal, 13 baggage, 23 freight vans, 4 flangers, 7 snow ploughs, 6,523 freight.

The following cars were scraped, filled and varnished: 6 first-class, 6 second-class, 4 baggage, 1 auxiliary, 2 express refrigerator.

The following cars were burned off, repainted and varnished: 6 first-class 8 second-class, 2 postal.

The following cars were painted and varnished: 7 first-class, 10 second-class, 4 postal, 4 baggage, 6 freight vans, 3 express refrigerator, 4 freight refrigerator.

The following cars were renovated and varnished: 1 official, 2 parlour, 23 sleeping, 6 dining, 75 first-class, 41 second-class, 25 postal, 15 baggage, 1 second-class sleeping, 9 freight vans, 1 auxiliary.

The following cars were repainted: 288 box, 254 platform, 37 gondolas, 2 tool, 3 box flangers, 13 snow ploughs, 1 wrecking crane.

Special work was done as follows: 5,332 new chilled wheels were pressed on axles, 2,348 second-hand chilled wheels were pressed on axles, 220 new steely wheels were pressed on axles, 273 second-hand steel wheels were pressed on axles, 842 new axles were turned, 421 freight cars were changed from link and pin to M.C.B. couplers, 2 passenger cars were changed from Miller to M.C.B. couplers, 5 passenger cars were fitted with Westinghouse air brakes, 1 flanger, 173 freight cars, 2 snow ploughs and 13 freight vans were also fitted with Westinghouse air brakes, 9 passenger cars had the Westinghouse air brake changed from the old automatic to emergency, &c., 9 passenger cars and 7 freight vans were fitted with Westinghouse air signal appliances, 25 passenger cars were fitted with automatic Slack adjusters, 3 parlour, 1 sleeping and 1 dining car were fitted with an additional Pintsch gas holder, and 1 parlour car was fitted with wide vestibules. In addition to the lumber prepared for the above repairs to cars, 508,470 feet of lumber was milled for store orders and buildings and machinery at Moncton.

A large amount of work was also done repairing freight and baggage trucks, chairs, ticket cases, station furniture and foot boards for the traffic department

Thirty-three hand cars were built and 9 heavily repaired, 7 new push cars were built and 5 heavily repaired, 52 hand car wheels were built, 15 new carts were built for shop use, 3 new freight trucks were built, 1 new air hoist for loading and unloading wheels on axles, and 1 new air hoist for unloading wheels from cars were installed in the car shops, 119 new wooden trucks were built, 10 Sterlingworth trucks were applied to freight cars.

The new heating system was installed in the car shops and 3 of the new machines received were set up.

No. 1.—INTERCOLONIAL RAILWAY.

Capital Account, Year ended June 30, 1905.

1904.		$ cts	$ cts.	1904.		$ cts.
June 30.	To cost of Intercolonial to date		72,735,935 80	June 30.	By Dominion of Canada	72,735,935 80
1905.						
June 30.	To expenditure for current year—					
	To increase accommodation at Sydney	59,288 88				
	Original construction	11,008 31				
	To strengthen bridges	246,242 05				
	To increase accommodation at Lévis	16,999 64				
	Air brakes to freight cars	24,991 13				
	To exchange draw bars of freight cars	45,010 90				
	New machinery for locomotive and car shops	40,308 54				
	To equip four passenger cars with Pintsch gas apparatus	1,401 26				
	To equip passenger cars with vestibules	1,773 53				
	Additional sidings along the line	139,165 49				
	Increased accommodation and facilities along the line	132,717 35				
	New superstructure Restigouche bridge	43,363 09				
	To dredge and blast rock at deep water terminus, Halifax	8,952 55				
	Improvements at Little Metis station and diverting public road	4,335 51				
	New station at Windsor, N.S., &c.	8,563 59				
	To increase accommodation at Amherst	16,752 13				
	To increase water supply	14,812 35				
	Increased accommodation at Amqui	13,014 39				
	Increased accommodation at Stellarton	26,728 48				
	Engine house, machine shop, &c., at Riviere du Loup	66,986 48				
	Engine house, &c., Chaudiere Junction	34,623 62				
	Increased accommodation at St. John	46,396 21				
	To increase accommodation at Halifax	372,791 09				
	Increased accommodation at Pictou	68,125 14				
	Improvements North Sydney	14,462 99				
	To increase accommodation Moncton	85,105 87				
	To increase accommodation at Ste. Flavie	60,759 71				
	Towards improving ferry service at Strait of Canso	45,928 56				
	Protection to Grand Narrows bridge	35,801 68				
	Semaphores at stations	1,186 09				
	Portable plant for boring and cutting rails	14,674 75				
	Extension to Sydney Mines	24,044 93				
	Diversion of line at St. Leonard Junction	10,562 18				
	Diversion of line at Mitchell	12,394 26				
	To reduce curve at Birch Cove	42,447 54				
	Double tracking parts of line	151,147 01				
	Rolling stock	1,377,078 11				

Steel rails and fastenings	495,009 89						
Increased accommodation at Truro	56,468 57						
Improvements at Drummondville	9,207 76						
Improvements at Riviere Ouelle	3,480 76						
Station at St. Moise	4,111 29						
To eliminate two road crossings at rail level at the Cape road crossing near Dorchester, N.B.	4,421 47						
Increased accommodation at Antigonish	14,046 83						
Siding at St. Romuald	1,079 80						
Diversion of public road to eliminate a crossing at rail level between St. Cyrille and Drummondville	500 00						
Increased accommodation at Memramcook	4,871 57						
Increased accommodation at New Glasgow	779 50						
Additional sidings and spur lines	23,700 00						
Purchase of Canada Eastern Railway	800,000 00						
		1,737,621 93					
		77,473,557 73					
				1905, June 30	By Dominion of Canada		4,737,621 93
							77,473,557 73

No. 2.—INTERCOLONIAL RAILWAY.

REVENUE Account, Year ended June 30, 1905.

Previous Year.	Expenditure.	Year ended June 30th, 1905.	Previous Year.	Earnings.	Year ended June 30, 1905.
$ cts.		$ cts.	$ cts.		$ cts.
2,616,922 26	Locomotive power, Abstract No. 1.	3,116,653 49	2,021,568 40	Passenger traffic..	2,105,066 75
1,707,927 96	Car expenses, Abstract No. 2	2,040,133 13	4,041,122 48	Freight traffic. . . .	4,373,178 55
1,491,673 18	Maintenance Way & Works, Abstract No. 3.	1,722,616 65	276,540 55	Mails and sundries	305,277 53
878,073 02	Station expenses, Abstract No. 4.	937,816 11			
517,936 79	General charges, Abstract No. 5.	535,541 85			
7,212,533 21		8,352,761 23			
112,551 17	Car mileage	16,065 52			
7,099,982 04		8,368,826 75			
140,000 00	Rental of leased lines, Abstract No. 6	140,000 00			
7,239,982 04		8,508,826 75	6,339,231 43		6,783,522 83
. . . . .	. . . . .	. . . . .	900,750 61	Balance.	1,725,303 92
7,239,982 04		8,508,826 75	7,239,982 04		8,508,826 75

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B.

No. 3.—INTERCOLONIAL RAILWAY.

LOCOMOTIVE Power, Year ended June 30, 1905.

Previous Year.		Year ended June 30, 1905.
$ cts.		$ cts.
16,372 66	Mechanical superintendent's salary, clerks, office and travelling expenses	26,729 19
631,711 91	Wages of drivers, firemen and cleaners.	747,779 65
1,234,927 25	Fuel.	1,487,918 30
34,048 47	Oil, tallow and waste and small stores	45,192 75
592,640 87	Repairs to engines, tenders and engine tools.	691,009 83
48,058 65	Water, including pump and tank repairs.	47,355 31
59,162 45	Miscellaneous.	70,668 46
2,616,922 26		3,116,653 49

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B.

No. 4.—INTERCOLONIAL RAILWAY.

CAR Expenses Year ended June 30, 1905.

Previous year.		Year ended June 30, 1905.
$ cts.		$ cts.
181,201 65	Repairs to passenger cars	225,379 24
54,354 50	Repairs to postal, express and baggage cars	43,564 62
601,030 04	Repairs to freight cars and vans	739,885 73
6,611 71	Repairs to snow ploughs and flangers	24,744 12
651,137 08	Wages of conductors, train baggage masters and brakemen	775,372 47
8,890 72	Oil and waste for packing	10,663 29
140,490 05	Small stores and fuel	177,367 54
64,212 21	Miscellaneous	43,156 12
1,707,927 96		2,040,133 13

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.,
MONCTON, N.B.

No. 5.—INTERCOLONIAL RAILWAY.

MAINTENANCE of Ways and Works, Year ended June 30, 1905.

Previous Year.		Year ended June 30, 1905.
$ cts.		$ cts.
7,235 24	Chief and assistant engineers' salaries, clerks, office and travelling expenses	8,682 82
644,450 60	Wages in repairing roadway, fences, semaphores, including new sidings laid in	711,381 60
173,558 47	Rails and fastenings, including new sidings laid in	137,940 52
194,458 92	Ties	219,219 95
201,129 66	Timber, lumber, &c., for repairs to bridges, cattle guards, snow sheds, fences, &c.	199,225 80
27,175 77	Repairs to wharves	44,579 00
90,416 10	Repairs to buildings and platforms, including extensions and additions to same	112,101 44
19,871 66	Repairs to tools	22,553 62
130,652 35	Clearing snow and ice	264,716 14
2,724 41	Miscellaneous	2,215 76
1,491,673 18		1,722,616 65

T. WILLIAMS,
Chief Acct. and Treas.

E. and O. E.,
MONCTON, N.B.

No. 6.—INTERCOLONIAL RAILWAY.

STATION EXPENSES, year ended June 30, 1905.

Previous Year		Year ended June 30, 1905.
$ cts.		$ cts.
738,964 14	Salaries and wages of station-masters, agents, clerks, telegraph operators, station baggage-masters, yardmasters, switchmen and labourers	797,065 54
139,108 88	Fuel, oil and light, stationery, tickets and other incidental expenses	140,750 57
878,073 02		937,816 11

T. WILLIAMS,
Chief Acct. and Treas.

O. & O. E.,
MONCTON, N.B., June 30, 1905.

No. 7.—INTERCOLONIAL RAILWAY.

GENERAL CHARGES, year ended June 30, 1905.

Previous Year.		Year ended June 30, 1905.
$ cts.		$ cts.
213,633 75	General manager, general superintendent, traffic manager, district superintendents, train despatchers, general freight agents' salaries, clerks, office and travelling expenses	229,835 26
53,966 56	Chief accountant and treasurer, traffic auditor, paymaster, cashier's salaries, clerks, office and travelling expenses	59,161 43
31,205 37	Damages to men, animals and goods	37,766 40
80,440 66	Ferry service	63,324 57
3,701 70	Telegraph expenses, not including pay to operators	2,729 59
60,976 45	Miscellaneous, printing, advertising, &c	75,407 04
73,872 30	Agency expenses	67,317 56
517,796 79		535,541 85
140 00	To pay Bridget M. Brown	
517,936 79		535,541 85

T. WILLIAMS,
Mechanical Accountant.

MONCTON, N.B., June 30, 1905.

No. 8.—INTERCOLONIAL RAILWAY.

SPECIAL VOTES, year ended June 30, 1905.

Previous Year.	Rental of leased lines.	Year ended June 30, 1905.
$ cts.		$ cts.
140,000 00	Rent of Grand Trunk Railway—Chaudiere Curve to Chaudiere, and Ste. Rosalie to Montreal, including the Victoria Bridge and terminals in Montreal	140,000 00

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.,
MONCTON, N.B.

No. 9.—INTERCOLONIAL RAILWAY.

GENERAL STORES ACCOUNT, year ended June 30, 1905.

1904.		$ cts.	$ cts.	1905.		$ cts.	$ cts.
June 30....	To Balance.....	.....	1,423,356 55	June 30...	By issues during year.....	4,213,938 86	
					Sales material, fuel, &c.....	54,910 67	
					Sales old material.....	192,505 20	
							4,461,354 73
1905.							
June 30....	To purchases during year.....	3,501,106 36					
	Charges from other departm'ts	553,399 37			By Balance—		
	Labour, etc.....	134,286 21			Ordinary stores, including fuel	428,480 38	
	Staff pay rolls.....	20,335 92			Steel rails and fastenings.....	742,649 30	
			4,209,127 86				1,171,129 68
			5,632,484 41				5,632,484 41

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.,
MONCTON, N.B.

No. 10.—INTERCOLONIAL RAILWAY.

General Balance, year ended June 30, 1905.

Dr.		$ cts.	Cr.	$ cts.
To Cash		1,038 34	By Dominion of Canada	1,826,825 66
Stations		204,979 20	Canadian Pacific Ry.—Traffic	20,039 12
Rents		5,199 79	Can. Coals and Ry. Co.	24 39
General stores—			Lotbiniere and Mégantic Ry.	80 18
Ordinary stores, including fuel	$ 426,944 38		Cumberland Ry. and Coal Co.	35 41
Iron and steel rails and fastenings	744,185 30		Inter-Provincial Navigation Co.	40 73
		1,171,129 68	C. C. C. and St. Louis Ry.	31 94
Dept. accounts—			Receiver Quebec Southern Ry.	940 18
Militia and Defence	$ 7,268 03		Canadian Express Co.	01
Post Office	107 48		Dominion Coal Co.	2,109 78
Public Works	7 00		Dominion Iron and Steel Co.	2,309 51
Marine and Fisheries	611 04		I. C. R. Insurance Association	42 66
Agriculture	35 74		SS. *Stanley*	10 00
		8,029 29	St. Marys Bridge Co.	2,071 16
Canadian Pacific Ry.—Rolling stock		22,446 90	Fraserville Foundry	336 29
" " General	$ 13,792 23		Suspense	3,563 50
" " (N.B. Div.)—General	2,728 75		Chatham Ry.	0 07
		16,520 98	Quebec Construction Co.	51 44
Grand Trunk Ry.—General	$ 7,059 22		Elmsdale Co.	1,190 18
" " Traffic	31,149 99		Department of Justice	1,000 00
		38,209 21	Canada Eastern Ry.—General	193 91
Quebec Central Ry.		10,725 28	Dominion Bridge Co.	2 48
Western Counties Ry.—General	$ 15,893 35		Salisbury and Harvey Ry.	369 84
" " Traffic	64 57		Transportation Ledger	47,636 91
		15,957 92		
Dominion Atlantic Ry.—General	$ 2,845 85			
" " Traffic	4,355 78			
		7,201 63		
Unclaimed freight		127 04		
Caraquet Ry.		15,940 00		
Kent Northern Ry.		3,641 85		
Central Ry. of New Brunswick		46,227 48		
Temiscouata Ry.		1,126 35		
P. E. I. Ry.		119,498 67		
Moncton and Buctouche Ry.		404 39		
Atlantic and Lake Superior Ry.		6,424 91		
Charlottetown Steam Navigation Co.		6 78		
Elgin and Havelock Ry.		236 58		
Boston and Maine Ry.		56 67		
Michigan Central Ry.		31 02		
Nova Scotia Central Ry.		2,893 45		
Pennsylvania Ry.		134 23		
Central Vermont Ry.		6,390 50		

No. 10.—INTERCOLONIAL RAILWAY—*Continued.*

General Balance, year ended June 30, 1905—*Continued.*

Dr.	$ cts.	Cr.	$ cts.
Canada Atlantic Ry.	104 63		
New York Central and Hudson River Ry.	79 40		
National Despatch Line	58 55		
Maine Central Ry.	16 03		
Inverness and Richmond Ry.	7,744 22		
Newfoundland Ry.	512 25		
Midland Ry. of Nova Scotia	5,135 24		
New York, N.H. and Hartford Ry.	14 23		
Wabash Ry.	34 11		
Cape Breton Ry.	1 90		
New Brunswick and P.E.I. Ry.	2,580 19		
St. Louis Refrigerator Car Co.	1 07		
Illinois Central Ry.	14 75		
Empire Line	0 30		
Pere Marquette Ry.	37 71		
St. Louis and South Western Ry.	10 26		
Kansas City, Fort Scott and Memphis Ry.	6 25		
Ann Arbor Ry.	4 18		
Lake Erie and Western Ry.	1 04		
Rome, Watertown and Ogdensburg Line	5 00		
Chesapeake and Ohio Ry.	61 52		
Canadian Northern Ry.	0 27		
Ballston Terminal Ry.	396 41		
Quebec and Lake St. John Ry.	6 22		
Great Northern Ry. of Canada	36 93		
Baltimore and Ohio Ry.	10 42		
Southern Pacific Ry.	3 69		
Pittsburg, Cincinnati, Chicago and St. Louis Ry.	3 43		
Minn., St. Paul and S.S. Marie Ry.	0 40		
Grand Trunk Ry.—Suspense	98 75		
Cincinnati, Hamilton and Dayton Ry.	4 56		
Great Northern Ry. Line	0 68		
Erie Ry.	14 82		
Rutland Ry.	13 58		
Tobique Valley Ry.	2,739 25		
York and Carleton Ry.	706 81		
Delaware and Hudson Co.	75 18		
Plant Steamship Line	2 64		
St. Martins and Upham Ry.	1,359 13		
Pennsylvania Co.	10 55		
Lake Shore and Michigan Southern Ry.	16 84		
Imperial Oil Co.	4 65		
Quebec Southern Ry.	27,255 99		

Swift.—Refrigerator Line	0 95
International New Brunswick Ry	36 75
Drummond County Ry	7,199 87
Brownsville Coal and Ry	223 80
Lehigh Valley Ry	20 51
South Shore Ry	0 28
Halifax and Yarmouth Ry	29 08
Minn. and St. Louis Ry	1 96
Chicago Great Western Ry	1 82
Chicago, Burlington and Quincy Ry	40
New York, Chicago and St. Louis Ry	37 11
Northern Pacific Ry	1 64
Delaware, Lackawanna and Western Ry	0 49
Missouri Pacific Ry	11 19
Continental Fruit Express	1 50
Chicago, Milwaukee and St. Paul Ry	1 20
St. Louis and San Francisco Ry	3 15
Iowa Central Ry	1 26
West Shore and Boston Line	6 15
Toledo and Ohio Ry	2 63
P. A. Cooling Car Co	0 55
Chicago, Rock Island and Pacific Ry	0 40
Vandalia Line	9 75
Town of Campbellton	26 25
Dominion Express Co	1,294 01
North American Trans. Co	2,344 52
C. Wade	268 14
Acadia Coal Co	47 18
Intercolonial Coal Co	35 01
Nova Scotia Steel and Coal Co	12,711 94
Corporation Central's Transportation	2,227 11
Edgerton Tramway Co	1,021 98
Baldwin Locomotive Co	181 10
Canadian Locomotive Co	44 50
Standard Car Truck Co	465 30
New Brunswick Power Co	180 00
Montmagny Light and Pulp Co	1,387 97
Royal Yeast	10,189 80
Surveys and Inspection	30 00
Engineering Contract Co	518 68
Canadian Pacific Ry Telegraph	311 15
Mernac Mining Co	317 84
Lake Superior Power Co	5,780 31
Maritime Coal Co	45 87
Maritime Engineering Co	48 20
Longmoore and Machine Co	88 95
Londonderry Iron and Mining Co	18,874 04
Western Union Telegraph Co	509 92
American Locomotive Co	1,421 17
Cobi Bros. Rolling Mill	1,967 41
Town of Dartmouth	32,000 00

No. 10.—INTERCOLONIAL RAILWAY—*Concluded.*

General Balance, year ended June 30, 1905—*Concluded.*

Dr.	$ cts.	Cr.	$ cts.
St. John Street Ry.	31 00		
Elgin Branch Ry.	726 10		
Polson Iron Works	273 25		
Union Bearing Co.	928 18		
Remittances destroyed	788 81		
Springhill and Parrsboro Ry.	3,161 99		
Allan Steamship Line	1,892 13		
Canadian Bridge Co.	271 13		
Car Victoria	32 70		
SS. *Verda*	50 78		
Crossen Car Co.	195 92		
SS. *Lake Ontario*	17 04		
Dartmouth Rolling Mills	869 65		
Thomson Line	6 50		
Halifax and Cape Breton Ry.	1,151 42		
Uncurrent and failed bank notes	82 20		
Halifax station labour	1,000 00		
Schooner *Mary Jane*	71 30		
Trois Pistoles Station	97 37		
Eel River "	32 61		
Athol "	4 44		
Shediac "	34 70		
Eureka Mills "	13 56		
Halifax freight "	887 49		
Nashes Creek "	6 25		
Rockingham "	27 47		
New Glasgow "	633 90		
Sackville "	10 17		
Wentworth "	33 24		
Amherst "	3 31		
Boisdale "	7 80		
Memramcook "	7 54		
St. John freight "	3,096 46		
Red Pine "	20 00		
Nappan "	40 00		
Riviere du Loup Ticket Station	16 00		
New Castle "	102 75		
Riviere du Loup freight "	136 82		
St. Alexandre "	25 90		
Ste. Louise "	0 66		
Nicolet "	39 53		
Derby Junction "	231 04		
Campbellton freight "	25 00		

Kent Junction	28	38		
Iona	72	71		
Isle Verte	25	00		
Dalhousie	19	69		
Valley	6	65		
Gloucester Junction	78	87		
Bic	22	00		
St. Arsene	107	12		
Ste. Luce	80	00		
Coal Branch	65	84		
Wolfrod	55	00		
Bloomfield	25	21		
Nauwigewauk	3	00		
Glengarry	5	00		
Forestdale	6	34		
Cambellton ticket	94	85		
Moncton freight	20	00		
St. Anaclet	11	00		
			6,260	67
Individual accounts			35,271	62
Total			1,908,905	35

Total	1,908,905 35

INTERCOLONIAL RAILWAY.

Individual Account, June 30, 1905.

	$ cts.
Dr.	
S. Venoit	15 50
Charles D. Ruddick	130 00
D. L. Campbell	15 00
Rhodes, Curry & Co.	20 68
F. E. Came	2,760 70
M. J. O'Brien	4 45
J. Norris & Co.	22 22
Ryan & McDonald	3,736 29
M. Beattie & Sons	1 14
Purcell & Fallon	11,672 77
A. R. McDonald	2 76
S. Cunard & Co.	507 85
Furness, Whitby & Co.	40 23
T. Malcolm	703 65
H. M. Price & Co.	305 43
T. B. Calhoun	10 00
A. N. Whitman & Son	150 00
J. C. Brown	15 00
Reid McManus	53 92
M. J. Haney	97 31
T. R. Campbell	3 00
Miramichi P. & P. Co.	20 43
O. Guérette & Son	36 92
L. Vallincourt	8 00
Alph. Levesque	8 00
Kinnear & Son	7 50
Price Brothers	1,336 02
Trois Pistoles P. & P. Co.	73 82
J. W. C. McConnell	50 00
J. W. Gallagher	0 50
Wm. Cook, K.C.	5,750 00
N. A. Landry	60 00
C. E. Doiron	50 00
Gray & Lawrence Bros	6 75
St. Francois Bridge Co.	49 59
R. Hamilton	1,131 52
H. Atkinson	12 80
H. M. Hamilton	316 66
H. J. Cameron	1,679 07
J. J. McLeod	644 16
A. Forbes	82 18
T. Atkinson	49 87
P. E. Gallant	173 36
T. Cook & Son	19 80
J. Richards & Son	116 24
Wallace Ross	33 70
J. N. Pouliot	352 20
R. A. & J. Stewart	41 39
Pickford & Black	152 46
L. R. Harrison	1,343 41
G. McDougall Co.	1,466 00
Municipality of Great Village	30 00
	35,370 25
Cr.	
Dubs & Co.	98 63
	35,271 62

No. 11.—INTERCOLONIAL RAILWAY.

Comparative Statement of Averages, June 30, 1905.

	1904.	1905.
Mileage of railway	1,320.92	1,414.67
Engine mileage	8,224,858	9,410,293
Train mileage	6,503,579	7,296,745
Car mileage	81,030,759	88,255,277
Receipts per engine mile.....Cents	77.07	72.08
Receipts per mile of railway.....Dollars	4,799.10	4,795.13
Percentage of passenger earnings to gross earnings	31.89	31.03
" freight " "	63.75	64.47
" other " "	4.36	4.50
Expenses per engine mile—:		
Drivers, firemen and cleaners' wages.....Cents	7.58	7.95
Fuel	15.02	15.81
Oil, tallow, waste and small stores	.41	.48
Repairs to engines	7.21	7.34
Water and tank repairs	.58	.51
Miscellaneous	.72	.75
Total	31.62	32.84
Mechanical superintendent's salary, office and travelling expenses	.20	.28
	31.82	33.12
Locomotive power per engine mile.....Cents	31.82	33.12
Car expenses "	20.76	21.68
Maintenance way and works per engine mile. "	18.14	18.30
Station expenses per engine mile. "	10.67	9.97
General charges " "	6.30	5.69
	87.69	88.76
Less car mileage	1.37	.17
	86.32	88.93
Rental of leased lines	1.70	1.49
Total per engine mile	88.02	90.42
Locomotive power per train mile.....Cents	40.24	42.71
Car expenses "	26.26	27.96
Maintenance way and works per train mile. "	22.94	23.61
Station expenses " "	13.50	12.85
General charges " "	7.96	7.34
	110.90	114.47
Less car mileage	1.73	.22
Total	109.17	114.69
Rental of leased lines	2.15	1.92
Total per train mile	111.32	116.61
Working expenses per mile of railway:—		
Ordinary	5,375.03	5,915.74
Rental of leased lines	105.99	98.96
	5,481.02	6,014 70

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.,
MONCTON, N.B.

INTERCOLONIAL RAILWAY.

GENERAL STATEMENT of the expenses of the Mechanical Department for year ending June 30, 1905.

The miles run by trains	7,296,745
" " engines	9,400,293
" " cars	88,255,277
" " snow ploughs	102,993
Cost of locomotive power	$3,116,653 49
Cost of car repairs—	
Repairs to passenger cars	$225,379 24
" postal and express baggage	43,564 62
" freight cars and vans	739,885 73
Oil and waste for packing	10,663 29
Snow ploughs and flangers	24,744 12
	$1,044,237 00
The cost of locomotive power—	
Per 100 miles by trains	$42 71
" " engines	33 15
" " cars and ploughs	3 53
The cost of repairs to cars and ploughs—	
Per 100 miles by train	$14 31
" " engine	11 11
" " cars and ploughs	1 18
The cost of oil and waste for packing—	
Per 100 miles by train	$0 14
" " engines	0 11
" " cars and ploughs	0 0120
The cost of repairs to cars per 100 miles run by them—	
Passenger	$2 12
Postal, express and baggage	0 89
Freight cars and vans	1 02
Ploughs and flangers	24 02

J. J. WALKER,
Mechanical Accountant.

E. & O. E.,
MONCTON, N.B., June 30, 1905.

A.—INTERCOLONIAL RAILWAY.

STATEMENT showing the number of Locomotives and the various classes of Cars on the line on July 1, 1904, and June 30, 1905.

	Locomotives.	First Class Sleepers.	Second Class Sleepers.	Parlour Cars.	Dining Cars.	First Class Passenger.	Second Class Passenger	Postal and Smoking.	Express and Baggage.	Air Brake Instruction.	Box.	Refrigerator.	Platform, 10, 15, 20 and 30 ton.	Oil Tank Cars.	Hopper, 6 and 15 tons.	Gondolas, 15 and 20 tons.	Coal Cars, 20 tons.	Stock Cars.	Auxiliary Tool Cars.	Vans.	Total.	Snow Ploughs.	Wing Ploughs.	Flangers.	Steam Ploughs.	Total.	Steam Cranes.
On hand serviceable July 1, 1904	299	31	31	5	7	115	92	32	50	1	5,486	82	2,686	15	772	36	528	119	19	99	10,206	48	10	22	2	83	3
Condemned July 1, 1904	3	..	..	..	..	2	1	..	..	..	..	2	..	..	227	18	14	4	..	..	268	1	..	..	..	..	..
	302	31	31	5	7	117	93	32	50	1	5,486	84	2,686	15	999	54	542	123	19	99	10,471	49	10	22	2	83	3
Received during the year on capital account	22	10	4	4	2	20	..	4	10	..	150	..	..	..	..	..	..	..	..	..	204	..	..	..	..	..	..
Received from the Canada Eastern Ry	7	..	..	..	..	..	4	..	..	..	..	..	46	..	..	..	..	..	2	..	52	3	1	1	..	5	..
Changed from large coal to platform	..	..	..	..	..	..	..	..	..	..	..	..	71	..	..	..	71	..	..	..	..	..	..	..	..	..	..
Changed from gondola to platform	..	..	..	..	..	..	..	..	..	..	..	..	37	..	..	37	..	..	..	..	..	..	..	..	..	..	..
Changed from wing plough to common	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..
	331	41	35	9	9	137	97	36	60	1	5,636	84	2,840	15	999	17	471	123	21	99	10,730	53	10	23	2	88	3
Condemned July 1, 1904	3	..	..	..	..	2	1	..	..	..	..	2	..	..	227	18	14	4	..	..	268	1	..	..	..	..	..
Condemned during the year	2	..	..	..	..	1	4	1	..	..	111	3	127	..	78	19	57	2	1	..	404	2	1	1	..	..	..
	5	..	..	..	..	3	5	1	..	..	111	5	127	..	305	37	71	6	1	..	672	3	1	1	..	..	..
Rebuilt during the year	3	..	..	..	..	2	4	..	..	..	111	..	127	..	250	37	71	..	1	..	603	3	1	1	..	..	..
To be rebuilt	2	..	..	..	..	1	1	1	..	..	..	5	..	..	55	..	..	6	..	..	69	..	..	..	..	..	..
Add serviceable and repairing	329	41	35	9	9	136	96	35	60	1	5,636	79	2,840	15	944	17	471	117	21	99	10,661	53	10	23	2	88	3
Total	331	41	35	9	9	137	97	36	60	1	5,636	84	2,840	15	999	17	471	123	21	99	10,730	53	10	23	2	88	3

E. & O. E.

MONCTON, N.B., June 30, 1905.

J. J. WALKER,
Mechanical Accountant.

B.—INTERCOLONIAL RAILWAY.

STATEMENT of Locomotives and Car Mileage year ending June 30, 1905.

	Locomotive Mileage.		Car Mileage.						
Month.	Passenger.	Freight.	Passenger.	Express. Postal and Baggage.	Freight.	Total.	Snow Ploughs.	Average Passenger.	Average Freight.
1904.									
July	283,993	303,121	1,129,488	474,125	5,299,957	6,903,570	.....	5.65	17.48
August	295,911	322,942	1,151,968	494,383	5,856,972	7,503,323	185	5.56	18.14
September	280,304	327,430	1,117,237	462,182	5,668,927	7,248,346	.....	5.64	17.31
October	276,415	365,969	967,052	442,570	6,574,241	7,983,863	144	5.10	17.69
November	256,809	363,202	880,006	419,582	6,385,298	7,684,886	2,460	5.05	17.58
December	221,776	424,765	799,180	386,626	7,052,171	8,237,977	8,069	5.34	16.60
1905.									
January	212,493	377,706	718,243	360,142	5,581,916	6,660,301	34,055	5.07	14.77
February	175,517	278,260	568,855	287,470	3,693,202	4,549,527	45,976	4.88	13.27
March	195,031	439,034	725,752	340,006	6,926,321	7,992,079	11,768	5.46	15.77
April	183,287	455,003	725,240	336,414	7,605,462	8,667,116	245	5.78	16.71
May	220,787	400,106	810,381	394,438	6,418,346	7,623,185	91	5.45	16.04
June	290,397	346,487	1,042,276	481,720	5,677,108	7,201,104	.....	5.25	16.38
Total	2,892,720	4,404,025	10,635,678	4,879,678	72,739,921	88,255,277	102,993	5.36	16.51

MONCTON, N.B., June 30, 1905.

J. J. WALKER,
Mechanical Accountant.

C.—INTERCOLONIAL RAILWAY.

ABSTRACT of Locomotive Returns for year ending June 30, 1905.

MONTHS.	CONSUMPTION.						AVERAGE CONSUMPTION PER 100 MILES.				
	Hours in Steam.	Locomotive Mileage.	Tons of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.	Miles run to 1 hour in Steam.	Pounds of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.
1904.											
July	70,500	734,087	28,368	36,967	17,792	15,831	10.41	8,656	5.03	2.42	2.15
August	73,556	769,340	30,404	38,057	18,052	17,110	10.46	8,852	4.94	2.34	2.22
September	72,811	754,537	31,058	36,458	17,320	16,552	10.36	9,220	4.83	2.29	2.19
October	80,210	806,401	34,617	37,228	17,719	17,485	10.05	9,616	4.61	2.19	2.16
November	80,600	788,263	35,319	35,943	17,669	17,498	9.78	10,036	4.56	2.24	2.22
December	88,521	833,190	40,787	39,611	18,165	19,059	9.41	10,965	4.75	2.17	2.28
1905.											
January	87,210	787,242	36,940	38,114	16,564	16,563	9.03	10,511	4.84	2.10	2.10
February	76,797	653,614	32,528	32,026	14,395	13,482	8.51	11,117	4.90	2.20	2.06
March	96,065	856,981	39,970	38,733	19,378	17,781	8.92	10,117	4.52	2.26	2.07
April	87,909	825,209	38,176	34,725	15,747	17,768	9.38	10,363	4.21	1.90	2.15
May	80,396	791,070	32,332	35,330	14,453	18,547	9.83	9,155	4.46	1.82	2.34
June	78,450	800,359	31,481	34,802	13,783	18,809	10.20	8,811	4.34	1.72	2.35
	973,025	9,100,293	411,980	437,994	201,037	206,485	9.66	9,817	4.66	2.14	2.19

MONCTON, N.B., June 30, 1905.

J. J. WALKER,
Mechanical Accountant.

D.—INTERCOLONIAL

STATEMENT of Locomotive Power, for each

Month.	Miles run by Locomotives.	Superintendence.	Engine-men's Wages.	Fuel.	Oil and Waste.	Repairs to Engines, Tenders and Tools.	Water.
1904.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
July	734,087	2,095 30	55,673 62	96,515 03	3,181 95	42,948 53	1,725 90
August. . . .	769,340	2,038 73	58,089 26	104,680 91	3,430 35	43,385 09	2,094 23
September .	754,537	2,060 59	57,694 46	108,192 84	3,239 69	40,296 10	5,653 47
October . . .	806,401	2,019 34	61,393 01	121,439 58	3,388 10	43,327 27	3,465 85
November..	788,263	2,061 61	61,013 21	127,210 89	3,846 51	55,825 55	3,042 27
December ..	833,190	2,559 18	65,983 24	149,120 26	3,615 20	58,259 10	6,307 93
1905.							
January . . .	787,242	2,154 51	64,394 43	137,370 83	4,466 51	63,722 60	3,887 42
February . .	653,614	2,324 22	59,888 22	126,239 51	3,634 41	59,516 43	5,928 23
March.	856,981	2,555 39	72,399 03	151,641 19	5,206 82	66,605 69	3,990 55
April.	825,209	2,272 38	65,650 21	138,469 79	4,129 01	109,477 12	5,001 89
May	791,070	2,425 20	62,328 62	108,359 47	3,416 23	53,938 20	4,363 67
June	800,359	2,162 74	63,272 34	118,678 00	3,637 97	53,708 15	1,893 90
	9,400,293	26,729 19	747,779 65	1,487,918 30	45,192 75	691,009 83	47,355 31

E. & O. E.,

MONCTON, N.B., June 30, 1905.

SESSIONAL PAPER No. 20

RAILWAY.

MONCTON, N.B., June 30, 1905.

Engine Houses and Turn-tables.	Total.	Average per 100 Miles. Superintendence.	Wages.	Fuel.	Oil and Waste	Repairs.	Water.	Engine Houses and Turn-tables.	Total.
$ cts.	$ cts.								
3,402 92	205,543 25	.29	7.58	13.15	.43	5.85	.24	.46	28.00
3,988 68	217,707 25	.26	7.55	13.61	.45	5.64	.27	.52	28.30
3,878 34	221,015 49	.27	7.65	14.34	.43	5.34	.75	.51	29.29
5,505 02	240,538 17	.25	7.62	15.06	.42	5.37	.43	.68	29.83
5,112 82	258,112 86	.26	7.74	16.14	.49	7.08	.38	.65	32.74
7,920 75	293,765 66	.31	7.92	17.90	.43	6.99	.76	.95	35.26
7,213 37	283,209 67	.27	8.18	17.45	.57	8.09	.49	.92	35.97
7,175 16	264,706 18	.35	9.16	19.31	.55	9.11	.91	1.10	40.49
8,113 24	310,511 91	.30	8.45	17.69	.61	7.77	.47	.94	36.23
6,761 03	331,761 43	.27	7.96	16.78	.50	13.27	.60	.82	40.20
5,846 11	240,677 50	.30	7.88	13.70	.43	6.82	.55	.74	30.42
5,751 02	249,104 12	.27	7.90	14.83	.45	6.71	.24	.72	31.12
70,668 46	3,116,653 49	.28	7.96	15.83	.48	7.35	.50	.75	33.15

J. J. WALKER,
Mechanical Accountant.

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occured in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1905.							
July 1..	19.05	102	Mixed..	A. G. Cameron....	J. Gallivan.....	177	North Sydney Jct.....
6..	12.05	133	Express..	Wm. Morgan.....	W. J. Hunter.....	149	Sussex, N.B.....
6..	19.15	....	Shunter.	J. Pinault (yard-master).	Geo. Sears..	120	Campbellton, N.B..
6..	22.30	....	" ..	T. Walsh	C. Skinner , ...	87	Richmond, N.S.....
11..	9.30	....	" ..	A. Coates (acting foreman).	E. Hayward	189	St. John, N.B.....
11..	20.15	12	Mixed.. ..	A. J. Welling	A. Wood.....	290	Cold Brook, N.B. ..
14..	7.10	....	Special. ..	D. Sweeney.....	Jas. King	226	Newcastle, N.B.. ..
15..	10.45	148	Freight..	T. Dussault.	H. Johnson....	175	Carmel, Que. ....
19	18.30	....	Pic-nic.... (special)	M. Wilson	L. Bradshaw.....	280	Moncton, N.B. .....
21..	16.21	153	Express..	M. Marchessault..	Geo. Finley....	163	Lévis, Que. ..
21..	16.30	....	.....	.....	.....	....	Lévis yard.....
" 23..	8.48	...	Pilot. ...	L. S. Paulet	Nap. Theriault...	182	Hadlow, Que .....
26..	17.20	49	Mixed....	A. Aubin.....	Chas. Mercier . ..	217	Owen's Siding, Que....
31..	22.55	9	Express .	A. E. Brown.....	O. McGinity.,..	26	Truro, N.S... .....
Aug. 1..	21.02	152	"	J. Huppe.....	E. St. Pierre.. .	303	Ste. Flavie, Que . ...
" 9..	1.30	15	Freight..	H. B. Gordon.....	Geo. De Mill.....	276	Westcock, N.B .....
10..	...	34	Express..	.....	.....	....	.....
13..	...	....	.....	O. Levesque	P. Michaud.....	117	Montmagny.....
13..	12.00	....	.....	.....	.....	....	Newcastle, N.B.....
13..	7.55	....	Pic-nic.... (special)	J. S. Nickerson...	H. Snider	283	Near Shediac, N.B. ..
13..	...	....	.....	....	"	283	Near Painsec Junction.
15..	17.03	....	Special. .	E. Smith.	E. Thomas.	270	Ste. Moïse, Que.....
" 15	....	....	.....	.....	.....	125	Drummondville.....
17.	6.25	....	Special. ..	Wm. Capson.	F. Belliveau.. .	230	Sackville, N.B. ....
18..	4.30	40	Freight...	W. F. Ferguson ..	A. Wood.....	298	Chatham Junction....
20..	12.59	199	Express ..	J. B. Crockett....	Geo. Kently.	237	Highlands Crossing..
" 22..	22.45	86	" ..	J. L. Chisholm...	— McLellan . .	165	Near Bedford, N.S....
22..	12.30	157	Mixed....	G. Lamkie.....	T. G. Scott. .	187	Dalhousie Junction ..
24..	9.20	....	Special. ..	R. G. Duff.. .	J. Burns..... .	266	Eel River, N.B.....
25..	4.45	....	Shunter..	T. Berube (yard-master).	Jos. Scott	307	Rivière du Loup.....
27..	....	....	.....	.....	.....	....	Moncton freight shed..
27..	7.00	199	Express ..	L. N. Letarte. ...	— Huot.	172	Drummondville .....
" 29..	17.30	.....	Special. .	U. St. Pierre.....	W. Blanchette. ..	208	Ashton Junction. . .
Sept. 1..	13.50	148	Freight..	F. Dussault.....	N. Boutin.....	175	Daveluyville, Que....
1..	22.00	....	Special. .	J. E. Fleming	J. Shaw.	222	New Glasgow.....
5..	21.30	9	Express ..	J. B. Pollock.....	C. Saunders	152	Grand Lake, N.S ..
7..	18.15	13	Express ..	F. Davison.....	John McLennan..	156	Elmsdale, N.S. .....
9..	8 15	....	Shunter ..	W. C. Layton (foremanl.	J. Johnson...	30	Truro, N.S... .....
14..	4.30	....	" ..	C. F. Scurr (foreman).	M. O'Brien. ...	123	Moncton, N.B.....

SESSIONAL PAPER No. 20

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1905.

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict.
H. J. Woulfaul	Passenger	While attempting to board train in motion fell between platform and cars.	Head bruised and legs broken, died on train.	Accidental.
Miss Flewelling	Neither.	While crossing track struck by train.	Fatal	No inquest.
J. Pinault	Yardmaster	While uncoupling cars.	"	"
L. Mullins	Brakeman.	While coupling cars.	Finger injured.	
John Petrie	"	Struck by car.	Arm injured.	
Robt. Watson	Neither.	Struck by train.	Fatal	Accidental.
Wm. Irvine	Brakeman.	Leg cut off while shunting	"	No inquest.
Alp. Martin	"	Stepped on nail while unloading freight.	Foot injured.	
Miss Chapman	Passenger	Fell from train	Slightly injured.	
E. Martin	"	Jumped from train	One leg cut off & other broken.	
An Indian	Neither.	Fell on rail (intoxicated).	Head cut.	
A. Bonneau	Brakeman.	While shunting	Fingers bruised.	
Horace Levesque	"	While shunting fell from car.	Feet sprained.	
Unknown man	Neither.	Attempting to board train.	Fatal	Accidental.
Miss Delia Hamilton	Passenger	Jumped from train in motion.	Legs cut off.	
— Seely	Neither.	Getting on train	Arm cut off.	
Jas. Dunn	Employee P.S. & D.C.S.	Took a hæmorrhage of lungs on train between Montreal and Lévis.	Died Aug. 28, 1904.	
A. Levesque	Employee	Getting off engine	Hand injured.	
Robt. McMurray	Brakeman	Coupling disabled cars.	Fatal	Accidental.
Watson Gross	Passenger	Train parted	"	No inquest.
J. H. Gardiner	Brakeman		Leg cut off and other badly injured.	
Cyrille Dion	"	Coupling cars.	Finger injured.	
P. Bourgeois	Neither.	Coaling engine fingers caught in chain.	Three fingers broken.	
Geo. Wood	"	Attempting to board train, arms cut off.	Fatal	No inquest.
W. F. Ferguson	Conductor	Stepping from between cars fell.	Foot injured.	
Mrs. S. Lear	Neither.	Crossing track struck by train.	Collar bone broken.	
Wm. Marr	"	Struck by train	Fatal	Accidental.
Fred Steeves	Brakeman	While unloading freight	Side injured.	
J. Gallant	Fireman	While looking out cab window struck a box car.	Head cut.	
J. B. Chamard	"	Slipped from engine	Foot injured.	
P. P. Legere	Freight porter.	While handling a cask	"	
J. Taylor	Passenger	Standing on platform of car 'Chignecto' when it was derailed.	Neck scratched.	
A. Poire	Brakeman	While shunting.	Finger injured.	
Joseph Elie	Neither.	Getting on train fell between cars and platform.	Fatal	Accidental.
Geo. Purvis	Brakeman	Slipped while getting on engine.	Toes jammed.	
A. S. McLellan	Fireman.	Fell from engine.	Slightly shaken up.	
J. W. Weir	Brakeman	While leaning over side of car, head struck bridge.	Fatal	No inquest.
A. Halliday	Car repairer.	While repairing car, it was struck by engine.	Foot and ankle slightly injured.	
F. F. Nickerson	Brakeman	Foot caught in frog	Toes (2) jammed.	

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1904.							
Sept. 15..	12.30		Special...	W. J. Ellis.....	F. Chisholm.....	147	Windsor Junction.....
" 15..	10.00		Shunter..	Fred McPherson (foreman).	J. Joncas.....	285	Point Tupper.....
" 19..	8 30		Special...	R. H. Wllkins....	D. McDonald.. ..	80	McKinnon's Harbour...
" 20..	6.15		Shunter.	H. J. Murray (foreman).	T. Hanway....	124	Truro, N.S .....
" 21..	15.10		Special...	J. T. McDonald ..	Chas. Tobin.....	146	North Sydney Jct.....
" 24..	7.25		" ..	G. A. McLeod....	.....	78	Stellarton, N.S.....
" 26..	10 30	42	Freight...	S. Bernier.....	Ed. Kean.....	260	St. Moise, Que.....
27..	22.30	..	Shunter..	A. Gallant (yardmaster).	G. Gilker.....	122	Campbellton, N.B....
" 27.	14.10	55	Freight...	J. L. Barnhill. ..	— McCullum.....	293	Antigonish, N.S ...
Oct. 1..	18.00		Working.	W. N. Booard	T. Hennesy..	230	Petite Roche.....
" 3..	24.30		Special...	Gordon McLeod ..	Alex. Urquhart...	15	Between New Glasgow and Stellarton.
" 3.	24.30		" ..	" ..	" ..	15	" ....
" 4 .	23.30		Shunter..	A. Gallant (yardmaster).	B. Luty.....	122	Campbellton..... . ..
8..	2.30		" ..	R. Johnson (foreman).	J. Kelly.....	124	Truro, N.S .....
" 9..	10.28		Speeial ..	J. Therrien.....	N. Boutin.....	207	Moose Park..... .....
" 12..	15.30	23	Freight..	H. D. Fraser.....	R. Kennedy ...	281	Amherst, N.S... . ....
13..	4.00		Working.	C. M. Lutes	B. Johnson.....	23	Bedford, N.S .. ..
" 15..	5.40		Special...	J. T. McDonald ..	M. A. Smith.. .	33	Near McKinnon's Harbour.
15..	5.40		" ..	R. H. Wilkins....	Dan McDonald.	174	" .. .
" 15..	5.40		" ..	" ..	" ..	174	" ..
15..	8.22	199	Express ..	J. Rioux	Jas. Collet.....	172	Montreal .....
" 19..	7.10	145	" ..	M. Verville.....	M. Houston	82	Near Nicolet.....
21..	16.45		Shunter..	T. Berube (yardmaster).	Thos. Levesque..	203	Vaillancourt Landing...
24..	14.30		" ..	.....	J. Phinney...	107	Truro, N.S.... .... ..
25..	2.30		Special...	W. P. Smith ...	H. Johnson	275	Oxford Junction.....
26..	10.00	40	Freight...	J. Swetman.....	A. Wood.....	250	Moncton ... .
27..	18.30		Special...	J. S. Nickerson...	T. Townsend.....	29	Spring Hill Junction...
27..	11.00		Shunter..	J. Jackson (foreman).	T. O'Brien.... .	190	Halifax.. ....
28..	7.30		" ..	S. Dion (yardmaster).	H. Sharp.....	183	Lévis, Que ....
28..	20.00		Special...	Nap. Levesque....	Wm. Savidant...	267	Amqui, Que .....
31..	18.45	49	Mixed....	A. Arcand	A. Goulet	212	St. Jean Chrysostome..
31..	18.45	49	" ..	"	"	212	" ....
Nov. 1..	14.00		Working.	W. F. Ferguson...	T. Copeland ..	250	Eel River... .....
1..	7.00	75	Freight..	Geo. L. Nixon...	L. Starratt ...	283	Near Spring Hill Jct ..
1.	11.30	25	Express ..	Jas. Millican . .	Jas. McAuley	239	Oxford Junction.. .. .
1.	11.30	25	" ..	"	" ...	239	" ..
1..	17 30		Special...	J. McLeod.... ..	T. Townsend. .	8	Sackville, N.B.....
5..	20.10		Working.	Walter Long.....	John Cameron....	9	Gibson, N.B..... .
5.	1.00	38	Freight...	C. McDougall.. ..	.....	.....	New Castle .....
9.	5.00		Special ..	J. McLeod.....	J. King	113	Spring Hill Junction . .
9 .	5.00		" ..	"	"	113	" " . .
10.	8.15		Pilot.....	J. Dawson.....	Chrs. Dobbs..	11	Levis Yard . . . .
11..	11.45		Shunter..	J. E. Fogarty.... (Foreman).	Samuel Watson...	132	Moncton. . . . .

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1905—*Continued.*

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict.
W. J. Ellis	Conductor	While shunting, cars collided	Slightly injured	
Fred. McPherson	Foreman shunter.	While shunting, fell from box car.	Fatal	Accidental.
Jas. Gillis	Brakeman	Fell between cars	"	No inquest.
H. J. Murray	Foreman shunter.	Stepping from car	Ankle sprained	
W. H. Bigney	Employee	While unloading freight	Finger injured	
Geo. H. Haron	Neither	Struck by engine	Fatal	Accidental.
Z. Berube	Brakeman	While shunting	Head injured	
Paul Allard	"	While coupling cars	Hand injured	
Henry J. Marr	"	While shunting	Fatal	Accidental.
H. Ultican	"	"	Finger slightly injured.	
John McDonald	Neither	Struck by train	Fatal	Accidental.
— Hood	"	"	"	
A. Michaud	Employee	While getting hot water from injector.	Leg scalded	
R. Johnson	Foreman shunter.	While uncoupling cars	Thumb and finger injured.	
Eugene Hamel	Neither	Struck by train	Fatal	Accidental.
M. Bristol	"	Passing between cars	Foot injured	
Stanley McNutt	Employee	Getting on flat car	Shoulder injured	
John E. McNeil	Fireman	Collided with Wilkin's special, caught between engine and tender.	Fatal	Accidental.
Dan McDonald	Driver	Collided with McDonald's special	Badly injured	
Vincent Wright	Brakeman	" "	Leg sprained	
T. McNeil	Employee	Struck by train	Shoulder bruised and head cut.	
Leon Rousseau	Passenger	Jumped from train in motion	Head and hand injured.	
Alex. Dumas	Brakeman	While shunting, caught between platform and cars.	Badly jammed	
Howard Murray	"	While coupling cars	Foot jammed	
F. McCully	"	"	Hand injured	
Harry Gunn (boy)	Neither	While riding on car	Foot cut off	
E. C. Wryn	Brakeman	Getting on front of engine	Head cut	
Clarence Graham	"	While coupling cars	Hand injured	
A. Laforest	"	While shunting fell from flat car.	Shoulder injured	
Nap. Levesque	Conductor	While coupling cars, hit by air brake hose.	Nose cut	
Bertha Goulet	Passenger	Jumped from train	Slightly injured.	
Eugene Goulet	"	"	"	
D. O. Vineau	Employee	While unloading rails	Toes (2) jammed.	
Josiah Legran	Neither	Walking on track, struck by train.	Fatal	Accidental.
Jas. McAuley	Driver	Train ran into an open switch, colliding with Fowlie's special engine.		No inquest.
Watson Lawrence	Fireman	" "	Leg broken and face cut.	
W. Sutherland	Brakeman	While shunting	Ankle sprained	
Jos. Christie	Brakeman	While coupling cars	Hand injured	
Jas. Copp	Employee	While unloading freight.	Face cut	
D. McDonald	"	Car fell from trestle	Scalp wound	
S. Tuttle	"	" "	Slightly injured.	
Hubert Carrier	Neither	Struck by engine	Leg and arm cut off.	
Wm. J. Callahan	Clerk (jr.)	Getting on shunter.	Foot cut off	

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1904.							
Nov. 16..	12.00	105	Freight...	W. A. Mann.....	F. Satchell.....	160	North Sydney....
" 16..	8.30		Special....	W. Brownrigg....	H. Peeples.. ..	282	Bayfield Road...
19	15.50			D. Sweeney.....	C. E. Freeze... ..	134	Collet's Siding....
" 19..	11.30			A. Gavreau.....	L. W. Dutil .. .	209	Hadlow, Que.....
" 19 .	9.35	153		.....	J. Deveraux	194	Ste. Flavie, Que.
19..	21.22	17	Express	C. W. Hennessy...	J. G. McDonald..	64	Near Hopewell, N.S.
" 19..	10.58		Special..	A. Laliberte	H. Boutin.....	204	Near St. Hyacinthe
19..	19.40	19	Express	J. J. McNeil.	A. Prowse.....	161	North Sydney Jct.
" 22..	16·30		Special..	.....	John Baxter.....	263	Stellarton, N.S.....
24 .	.	.	.	. . . . .	....	. .	Moncton, N.B. ..
24..	.	.	.	. . . . .	. . . . .	. .	"
24..	14.00	41	Freight...	A. Begin	T. Matheson .	243	Ste. Moise, Que
24..	. . .	. . .	. . .	. . . . .	. . . . .	. . . .	Riv. du Loup .
25..	5.30		Shunter . .	T. Berube ..... (Yardmaster).	H. Turner. . .	302	" . .
" 26..	24.00	. .	Special....	G. A. Armstrong..	J. King	220	Maccan, N.S....
" 28.	6.45			.....	J. Clark.....	236	Halifax.....
28..	17.00	..		.....	.....	....	Truro, N.S.....
Dec. 3 .	12.00			.....	.....		"
7.	17.05	2	Express ..	C. J Rhodes.	J. Ross..... ..	232	Alton, N.S. ..
10..	19.15	S.S.	"Scotia"..	L. McGuire..... (Captain).	Jas. Anderson	.....	Mulgrave, N.S.....
12..	23.10		Special....	L. Gingras	D. Coté and..... W. Mountain ..	200 \ 141 /	St. Lambert, Que..
" 12..	12.30	34	Express ..	W. A. Mitchell. ..	Jos. Cloutier.....	102	St. Hubert . . . .
16.	7.00			.....	.....	....	Truro, N.S.... .
17.	18.10		Shunter	A. Dickie ..... (Yardmaster).	B. Lutes.....	122	Campbellton.....
21.	9.00	304	Mixed..	A. Crookshank....	N. J. Ivory. .	17	Chatham .....
" 25.	19.30		Special..	Jas. Langille.. ...	O. Bruce..... .	289	Londonderry..
" 30.	17.45			A. Laliberte....	J. W. Dean.....	204	Daveluyville....
1905.							
Jan. 2	11.30		Shunter	D. Laplante. . ... (Yardmaster).	J. Scott	302	Riv. du Loup .
2	11.30	50	Express	O. Levesque..	A. Goulet	213	Cap St. Ignace.
3	5.30			.....	.....	.....	Hadlow. . . . .
" 3	9.10	141	Mixed. . .	A. Calder	A. Sproull	....	Westville, N.S....
5	21.23	75	Freight..	D. Hains.. . .	W. F. Smallwood.	...	Newcastle, N.B.
9.	11.00			.....	.....	....	Truro, N.S.....
14				.....	.....	.....	Moncton, N.B. .
Jan. 16.	6.40		Shunter..	W. N. Bovard	A. Woods.....	193	Moncton.... . .
" 21.				.....	.....	.....	Riv du Loup....
" 23.	.			.....	.....	....	Union, N S.....
" 24.	.		Special .	D. Hains. . .	A. S. Bourgeois...	250	Dickie's, N B....
" 26.	18.00		Shunter	.....	M. O'Shaughnessy	230	New Castle, N.B.
" 27.	10.00			.....	— Johnson.....	61	Truro. N.S .....
28	20.45		Special...	E. K. O'Brien .	H. A. Peeples	282	Monastery, N.S .
29	9 45		Snowtrain	.....	A. Cook.....	184	Moncton, N.B
30.	13 00			.....	.....	...	Amherst, N.S.....

SESSIONAL PAPER No. 20

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1905—*Continued.*

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
D. A Cameron	Employee.	While unloading castings.	Finger injured.	
J. T. Haliday	Brakeman	While shunting	Hand injured.	
J. Cormier	"	" "	"	
Frank Evans (boy)	Neither	Run over by train	Fatal	Accidental.
Alex. Madore	Employee	Struck by train	Slightly injured.	
Unknown man	Neither.	" "	Fatal	Accidental.
Jos. Barbeau	"	Horse frightened by engine.	Slightly injured.	
Miss M. A. McDougall.	Passenger	Jumped from train while in motion.	Face slightly injured.	
Angus McKenzie	Employee	While engine was backing out of engine house, caught between cab and post.	Back and leg injured.	
Andrew Babineau	"	Engine struck ladder on which he was working.	Elbow injured.	
C. Richard	"	Engine struck ladder on which he was working.	Heel injured.	
J. B. St. Pierre	"	While unloading oil.	Finger injured.	
— Martel	Porter.	Unloading freight.	Back sprained.	
J. A. Savard	Brakeman	Fell from car.	Knee injured.	
J. F. Armstrong	"	While shunting	Hand injured.	
John Spruce	Employee.	Run over by engine	Fatal	No decision rendered.
George E. Whidden.	"	Baggage truck slipped off platform.	Finger jammed.	
John Glenfield	"	Iron fell on his foot	Toe injured.	
A. McKinnon	Passenger.	Slipped while getting on train.	Fatal	No inquest.
Stephen McIsaac	Employee.	While cleaning an air-pump	Hand injured.	
L. G. Gelly	Fireman	Fell from tender.	Arm injured.	
Dr. Quintil	Neither.	Fell while crossing track.	Slightly shaken up.	
Howard Crow	Employee.	While letting down semaphore.	Lip cut	
A. Dickie	Yardmaster.	Slipped while in act of stepping on foot-board of engine.	Badly bruised.	
A. Crookshank	Driver	While coupling cars.	Hand injured.	
— McInnis	Neither.	Struck by train	Slightly injured.	
N. Fournier	Fireman	Gauge-glass broke.	Eye cut	
D. Laplante	Yardmaster.	While coupling cars.	Stomach injured.	
L. Bergeron (boy)	Passenger	Fell from train	Fatal	Accidental.
J. Forgues	Employee.	While working semaphore, wire broke.	Wrist sprained.	
Raymond Jollyman	Brakeman.	While shunting fell from box car	Arm and side injured.	
Wm. Hache	Employee,	Struck by engine.	Fatal	No inquest.
David Christie	"	Fell from box car.	"	" "
J. H. Gardiner	Clerk	Fell down stairs.	Leg broken.	
Amos Lirette	Employe	Struck by cars	Fatal	No inquest.
J. Dumas	"	Fell while getting on van.	Internal injuries	
W. Brownrigg	"	Train parted and collided throwing him from cupola.	Legs broken	
John Cowans	Neither.	Struck by train	Fatal	No inquest.
W. B. Foley	Brakeman	While shunting	Hand injured.	
Angus Lindsay	Employe	Working in flanger, struck by lever.	Face cut	
J. T. Fleming	"	Thrown from derailed car.	Slightly injured.	
Ed. Melanson	Brakeman	While getting on car, leg cut off.	Fatal	No inquest.
Chas. Blanche	Employe	While testing semaphore struck by lever.	Jaw broken and teeth knocked out.	

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Descrip- of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1905.							
Feb. 2..	21.60	.....	Special...	T. Dussault.....	W. J. Atkinson..	206	Near Aston Jct.....
" 4..	11.23	25	Express ..	Jas. Daley..	C. P. Atkinson ...	46	Near Londonderry.....
" 4..	15.45	.....	Shunter ..	.....	M. Tobin.....	95	Halifax, N.S.....
" 11..	15.00	.....	Special...	Wm. McGillivray.	Colin Keefe.....	12	Point Tupper.....
" 11..	10.10	.....	Snow train		W. Young.....	104	Campbellton, N.B....
" 14..	19.15	71	Mixed...	Geo. Lamkie....	J. Oakleaf.....	187	Dalhousie Jct.....
" 15 .	19.00	....	Special...	C. McDougall....	W. King.....	294	Bathurst, N.B. .....
" 17..	13.10	.....	Shunter ..	.....	Arthur Dion ..	206	Hadlow, Que.....
" 20 .	6.00	.....	.....	.....	Henry Duclos....	208	Hadlow Shop.....
" 21..	4.35	.....	Special..	Jas. McLaughlin.	H. Campbell.....	33	Tracadie .....
" 24..	23.10	....	Shunter ..	A. Simmons.....	M. Flavin.....	205	Halifax, N.S. .....
" 25..	19.05	76	Freight..	N. Sirois	J. Gorham.....	247	Trois Pistoles .. .. ..
" 26..	19.00	...	Special..	A. C. McLean ...	D. Matheson	67	Barrachois, N.S.....
" 27..	10.00	..	Shunter ..	.....	{ J. McDermott... / J. Moody.....	8 / 193	Moncton, N.B.....
" 28..	5.15	.....	Special...	J. N. Bernier.....	W. Atkinson	63	Ste. Rosalie.....
Mar. 7..	10.40	6	Freight..	Geo. L. Nixon....	J. Donald	290	Norton, N.B.....
" 8 .	5.00	.....	Special...	E. Harrett.....	A. Probert	77	Westville, N.S.....
" 9.	22.30	.....	Shunter ..	John Yeomans....	M. Flavin..	188	Halifax, N.S.....
" 10..	13.05	.....	Special...	F. Dixon.....	J. Gunning.....	262	Campbellton, N.B.. ...
" 10..	21.30	.....	" ...	A. Frizzle.....	A. Leitch.....	24	Richmond.....
" 12..	8.35	.....	" ...	W. N. Bovard....	A. R. Price.....	220	Chatham, Jct. .....
" 14..	18.12	.....	Light engine.	....	Wm. Lovett	64	Richmond.....
" 19..	11.00	...	Special...	F. Totten, (foreman.)	P. McInnis.....	241	" .....
" 21..	10.10	....	" ...	J. Maloney. . ..	— Anderson.....	234	Newcastle, N.S.....
" 21..	21.20	..	" . .	A. H. Hayman ...	B. Johnson.....	293	Between Dickie's siding and McKay's.
" 22..	16.50	34	Express ..	John Berry.....	Jas. Clark.....	235	Shubenacadie.....
" 24..	9.40	.....	Special..	A. Lockhart	L. Bradshaw.....	223	Near Pugsley's siding...
" 27..	12.45	24	Freight...	J. B. Crockett....	W. Gross.....	284	Amherst, N.S .....
" 28..	21.00	23	" ...	W. J. Ellis.....	W. McDonald....	265	Oxford, Jct..... .....
" 30..	4.45	...	Special...	M. Wryn.....	Jos. Stockford ...	275	Amherst, N.S..... ...
April 4	7.30	.....	Shunter ..	J. Halliday.....	J. Gilfillan . .	190	" .....
" 6 .	.....	.....	.....	.....	.....	.....	St. Hilaire, Que. ....
" 8 .	18 00	.. .	Shunter ..	G. Malcolm (Foreman.)	G. Currie.....	89	Halifax, N.S..... ...
" 8	15 20	.	.....	J. E. Fogarty "	S. Watson..	127	Moncton, N.B.....
" 11..	11 30	33	Express ..	Geo. Walker.....	E. Parson.....	76	Monmagny, Que. .....
" 12..	12 20	.....	Special...	E. Johnson.....	R. Hamilton	277	Hilden, N.S.....
" 17..	17 30	. .	Shunter ..	W. E. Layton (Foreman.)	J. Johnson..	61	Truro, N.S ....
" 18..	.....	.....	.....	.....	.....	.....	Pictou, N.S..... ..
" 20..	17 25	13	Milk.....	F. A. Davison...	— White.....	147	Bedford, N.S ....
" 21..	21 00	.....	Shunter ..	J. Russell (Yardmaster.)	G. Sears	120	Campbellton, N.B.....
" 24..	5 10	.....	Special....	M. Wryn.	Frank Gibson....	267	Dorchester, N.B..... ...
" 27..	19 30	. . .	Shunter ..	.....	John Flavin.....	288	Halifax, N.S... .....
" 27	.....	.....	.....	.....	.....	...	" ... .
" 29..	13 00	84	G.T.R....	— O'Brien.	.....	874	St. Rosalie, Jo.....

SESSIONAL PAPER No. 20

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1905—*Continued.*

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
W. J. Atkinson	Driver	Fell on injector pipe	Arm burned	
John McNeely	Neither	Walking on track, struck by train.	Fatal	Accidental.
Albert Howell	Brakeman	Fell while getting on cars	Thigh injured	
John B. Musgrave	"	While coupling cars	Hand injured	
Jas. Black	Employe	Fell between cars	Fatal	No inquest.
J. Oakleaf	Driver	Side rod broke	Slightly injured	
C. McDougall	Conductor	Slipped while shunting a car	Finger injured	
John Heatherington	Employe	Struck by engine	Badly injured	
Henry Duclos	Driver	While tightening gauge-glass nuts.	Head cut	
Gordon Somers	Employe	Engine left track	Fatal	Accidental.
W. Sweet	Brakeman	Fell between cars while shunting	Back and side injured.	
F. F. Martin	"	Fell while shunting	Knee cap injured	
D. Matheson	Driver	Engine left rails, thrown from cab.	Leg broken	
W. D. Graves	Brakeman	Flanger left rails	One leg broken and the other injured.	
R. LeBlanc	Fireman	While shaking fire struck by bar.	Head cut	
Frank McKinnon	Brakeman	While coupling cars	Hand injured	
Wm. Johnson	"	Fell between cars	Legs fractured	
L. Baker	"	While shunting, fell from box car.	Head injured	
C. McWilliams	"	While removing chain from disabled car.	Arm bruised	
Harvey Levi	"	While uncoupling engine	Head injured	
P. Ferguson	"	Fell while getting on car	Fatal	No inquest.
Jas. Murphy	Employee	While getting on engine	"	No decision rendered.
S. McEachern	Brakeman	While coupling cars one leg cut off and internal injuries.	"	No inquest.
Byron Meade	"	Jumped from car	Feet injured	
Immigrant	Passenger	Fell from train	Slightly injured.	
Old squaw	"	Died on train		
L. Bradshaw	Driver	Fell from running board of engine.	Head cut	
F. Nickerson	Brakeman	While shunting	Badly injured	
Stanley McCullough	"	"	Slightly injured.	
Thos. Warren	"	Fell while getting off box car.	Shoulder injured	
P. Belliveau	Neither	Caught while passing between cars.	Fatal	Accidental.
Alfred Boutin	Employe	While lowering semephore	Head cut	
John Hibbitts	Brakeman	Fell from car while shunting	Leg broken	
W. Osborne	"	While shunting	Breast and shoulder injured.	
Amedee Fortin	Neither	While getting off moving train.	Knee cap broken	
F. Boomer	Brakeman	While shunting caught between cars.	Fatal	No inquest.
W. Wallace	Neither	Fell from coal car	Back slightly injured.	
Hardy McDonald	Employee	While unloading freight	Foot injured	
Thos. Jackson, (boy)	Passenger	Jumped from moving train	Slightly injured.	
W. Payne	Employee	Jumped from moving engine	Internal injuries.	
John Pyne	Neither	Struck by train	Fatal	Accidental.
E. Sims	Brakeman	While shunting	Head injured	
John Lovett	Employee	While attempting to board train, struck blind switch.	Head and body injured.	
L. E. Carpenter	"	Jumped from train in motion	Wrist injured	

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1905.							
April 29..	1 00	70	Suburban.	T. Johnson.	W. Lovett..... ...	108	Halifax, N.S.....
" 29..	... ...	...	... ...	....	... .	....	Betw'n Hadlow & Levis
May 1..	15 09	...	... ...	E. L. Watts .. .	....	.....	Dalhousie.....
" 4..	15 30	...	Shunter ..	E. McEachern (Foreman.)	R. McInnis. .	87	Halifax, N.S..... .
" 4..	14 55	...	Pilot.....	Wm. Tees.....	F. Goddard....	136	Ste. Rosalie.....
" 8..	9 00	.....	Shunter ..	....	H. Como.	184	St. John, N.B.....
" 9..	10 00	..	" ..	....	....	.....	Sydney, C.B.....
" 18..	17 30	35	Express .	....	Alex. Donald.	6	Campbellton, N.B... .
" 25..	7 18	45	Freight...	F. Dumont....	O. Halle	70	St. Anne, Que.....
" 27..	17 30	...	Shunter ..	F. Dunbar (Foreman.)	A. McGrath.. ...	205	Halifax, N.S..... ..
" 31.	14 15	..	Shunter ..	J. E. Fogarty (Foreman.)	S. Watson..... ..	127	Moncton, N.B.....
June 1..	21 00	....	Shunter ..	....	S. Stewart.....	61	Truro, N.S..... .....
" 5..	8 05	...	Shunter ..	....	J. Phinney.....	59	" .....
" 8..	19 00	.	..... .	....	....	....	Halifax, N.S... .....
" 13..	... ...	...	... ...	....	....	...	New Glasgow, N.S ...
" 14..	16 33	85	Express ..	W. J. Ross.	D. Yould.....	49	Hopewell, N.S.....
" 16..	.....	...	.....	....	....	.....	New Mills.....
" 19..	2 30	13	Milk... .	F. A. Davison..	... .	.....	Halifax, N.S.....
" 21..	10 05	37	Freight...	Jas. Card.....	Geo. Milne.....	103	Acadiaville .....

line of the Intercolonial Railway during the year ending June 30, 1905.

Name of Person Injured.	Whether Passenger or Employe.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
A. Simmons	Employee	While attempting to board train, struck blind switch.	Head and body injured	
Miss Roy (little girl)	Neither	Run over by engine	Fatal	Accidental.
Patrick Leblanc	Employee	While putting stove grate in place.	Wrist injured	
James Ryan	Brakeman	While shunting	Hand slightly injured.	
Philip Tremblay	Neither	While passing between cars	Foot injured	
Alfred McElwaine	Brakeman	While coupling cars	Head injured	
P. H. Sampson	Employee	While unloading freight, board slipped.	Head slightly injured.	
F. Leblanc	Brakeman	While uncoupling engine from cars.	Arm scalded	
F. Blanchette	Neither	Found alongside track	Fatal	Accidental.
John Purvis	Brakeman	While coupling cars	Hand injured	
F. B. Isaacs	"	Fell between cars, arm and leg badly crushed.	Fatal	No inquest.
Amos Biswagner	"	While coupling cars	Thumb and finger injured.	
A. Carlyle	"	" "	Hand injured	
J. O'Grady (boy)	Neither	While playing in yard, logs rolled on him.	Fatal	No inquest.
John McDonald	Employee	Foot step on car gave way	Toes injured	
J. R. Smith	Neither	Struck by train	Fatal	Accidental.
Alex. Wood	"	Found in cattle-guard	"	Accidental.
S. Hall	Employee	Loading milk in car	Ankle broken	
Jos. Horseman	Brakeman	Unloading freight	Two fingers injured.	

WINDSOR BRANCH RAILWAY.

OFFICE OF THE GENERAL MANAGER OF GOVERNMENT RAILWAYS
MONCTON, N.B., September 21, 1905.

SIR,—I have the honour to submit the following statements showing the results of the working of the Windsor Branch Railway for the year ended June 30, 1905.

No. 1.—Revenue Account.

No. 2.—Maintenance of Ways and Works.

No. 3.—General Balance.

No. 4.—Statement of Earnings.

I also send you the report of the Engineer of Maintenance on the condition of the permanent ways and works.

This line, 32 miles in length, was operated during the year by the Dominion Atlantic Railway Company on the same terms as last year, the company being allowed to retain two-thirds of the gross earnings, the balance, one-third, being paid over to the government, the latter maintaining the line.

The gross earnings show a decrease, compared with those of the previous year, as follows:—

Earnings 1904-05	$50,038 67
Earnings 1903-04	53,634 05
Decrease	$ 3,595 38

The decrease was in both passenger traffic and freight traffic.

The net earnings for the year were $23,175.51.

The permanent way and works received necessary repairs and are in good order.

I have the honour to be, sir,

Your obedient servant,

D. POTTINGER,

General Manager, Government Railways.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

INTERCOLONIAL RAILWAY.

OFFICE OF THE ENGINEER OF MAINTENANCE.
MONCTON, N.B., August 31, 1905.

SIR,—I have the honour to submit herewith the report of the maintenance of the Windsor Branch, for the year ending June 30, 1905.

TRACK.

During the past year 604 feet of 4-inch and 1,510 feet of 4½-inch, were taken out of the track, and 284 feet of 4-inch, 978 feet, of 4½-inch and 852 feet of 4½-inch rails, cut and relaid.

TIES.

19,651 ordinary ties, and 8 sets of switch ties were renewed during the year.

BALLASTING.

45 cubic yards of gravel and ashes were distributed and put under during the year.

SWITCHES AND SEMAPHORES.

During the year one new semaphore was erected in Windsor yard, and a new set of switch gear installed at Tuft's Cove, repairs were made to all existing switches and semaphores.

SIDINGS.

During the year 950 feet of new siding accommodation was provided at different points.

FENCING.

Four hundred and nineteen rods of new Page wire fence were built during the year, and necessary repairs made to existing fences.

BUILDINGS AND PLATFORMS.

Repairs.

Windsor, engine house.
Windsor, baggage room.
Windsor, freight platform.
Windsor, freight shed.
Windsor, passenger platform.
Windsor, baggage room floor.
Mount Uniacke, temporary tank.
Mount Uniacke, platform.
Hartville, passenger platform.
Beaver Bank, station.
Ellershouse, station.
Ellershouse, freight shed.
Newport, station.
Newport, station.
Three Mile Plains, platform.
Windsor Junction, platform.
Windsor Junction, station.
South Uniacke, new station.

MASONRY.

Windsor Junction, new chimney in baggage room.
Windsor Junction, cellar wall, station.

BRIDGES AND CULVERTS.

Big Bog Bridge, new top.
Ellershouse, culvert.
Necessary repairs made to all wooden culverts.

MASONRY.

Jordan Bridge, pointed piers and abutments.
St. Croix Bridge, pointed piers and abutments.

GENERAL.

Repairs were made to cattle guards, road crossings and gates throughout the line, where required.

Glazing was done, and glass put in, where required.

Outhouses and approaches to public road crossings were whitewashed, where necessary.

Semaphores and signals were painted, where required.

Necessary repairs were made to hand-cars and trollies, and wheel-barrows, throughout the line.

Ladders for semaphores and buildings were provided, where required.

I have the honour to be, sir,

Your obedient servant,

T. C. BURPEE,

Engineer of Maintenance of Way and Works.

WINDSOR BRANCH RAILWAY.

REVENUE Account, year ended June 30, 1905.

Previous Year.	Expenditure.	Year ended June 30, 1905.	Previous	Earnings.	Year ended June 30, 1905.
$ cts.		$ cts.	$ cts.		$ cts.
24,281 09	Main. of way and works.	26,863 16	14,527 58	Passenger traffic	13,829 22
29,352 96	Balance.	23,175 51	37,950 95	Freight traffic	35,064 66
			1,155 52	Mails	1,144 79
53,634 05		50,038 67	53,634 05		50,038 67

T. WILLIAMS,

Chief Acct. and Treas.

E. & O. E.

MONCTON, N.B., June 30, 1905.

WINDSOR BRANCH RAILWAY.

MAINTENANCE of Way and Works, year ended June 30, 1905.

Previous Year.		Year ended June 30, 1905.	
$ cts.		$ cts.	
10,117 96	Repairs of track	11,744 04	
5,050 13	Rails and fastenings	420 93	
2,724 27	Ties	5,605 00	
1,587 51	Bridges	625 25	
46 80	Signals	18 24	
1,999 03	Culverts, cattle guards, &c.		
7 50	Wharf at Windsor	106 49	
604 65	Buildings and platforms	2,067 28	
7 10	Hand cars and trollies	10 10	
541 23	Removing snow and ice	4,063 04	
191 90	Tools and repairs of same	206 80	
216 29	Fencing	830 05	
1,078 69	Accountant's office and expenses	1,135 09	
108 03	Miscellaneous	30 85	
24,281 09		26,863 16	

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B., June 30, 1905.

WINDSOR BRANCH RAILWAY.

GENERAL Balance, year ended June 30, 1905.

1905.		$ cts.	1905.		$ cts.
June 30.	To Stores	226 72	June 30.	By Dominion account	362 05
	D. A. Ry.	135 33			
		362 05			362 05

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B., June 30, 1905.

WINDSOR BRANCH RAILWAY.

MONTHLY Statement of Receipts—One-third Earnings.

Month.	Passenger Traffic.	Freight Traffic.	Mails.	Totals.
	$ cts.	$ cts.	$ cts.	$ cts.
July, 1904	1,661 81	1,736 40	96 91	3,495 12
August "	1,938 92	1,992 17	96 91	4,028 00
September "	2,375 42	4,688 80	96 90	7,161 12
October "	1,331 77	4,482 43	96 90	5,911 10
November "	1,070 19	4,128 69	96 90	5,295 78
December "	921 52	2,838 56	96 91	3,856 99
January, 1905	568 56	2,822 92	96 91	3,488 39
February "	255 66	1,039 95	96 90	1,392 51
March "	722 41	4,292 74	89 55	5,104 70
April "	868 53	2,938 75	95 68	3,902 96
May "	842 01	2,280 94	88 64	3,211 59
June "	1,272 42	1,822 31	95 68	3,190 41
	13,829 22	35,064 66	1,144 79	50,038 67

T. WILLIAMS,

E. & O. E. *Chief Acct. and Treas.*

MONCTON, N.B., June 30, 1905.

PRINCE EDWARD ISLAND RAILWAY.

OFFICE OF THE GENERAL MANAGER OF GOVERNMENT RAILWAYS.
MONCTON, N.B., September 13, 1905.

SIR,—I have the honour to submit the following reports on the working of the Prince Edward Island Railway for the fiscal year ended June 30, 1905.

I enclose the report of the superintendent, including statements of the various accounts; also the report of the chief engineer on the works charged to capital account.

The mileage of the railway was the same as last year, 209 miles.

The expenditure on capital account during the year was $591,412.65.

This makes the total cost of the railway on June 30, 1905, $6,719,529.45. Of the expenditure during the year $151,065.48 was on account of the Murray Harbour Branch, and $133,153.85 for the Hillsborough bridge, which is a part of that branch; $99,971.58 on account of a branch line from Cardigan to Montague bridge, and $44,008.24 on account of a branch line to Vernon river bridge.

The results of operating the railway are much less favourable than last year, the working expenses being $370,464.44, and the gross earnings $217,330.61, a loss of $153,133.83, as compared with the previous year, when the loss was $101,305.41.

The gross earnings from freight traffic decreased $19,336.89 as compared with last year. There was an increase in passenger traffic of $127.06, and in mails and express freight of $2,150.41, making a total decrease in gross earnings $17,059.42.

There was an increase of $34,769.00 in the working expenses compared with last year.

The permanent way and works and the rolling stock are in a state of efficiency.

I have the honour to be, sir,

Your obedient servant,

D. POTTINGER,

General Manager, Government Railways.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

PRINCE EDWARD ISLAND RAILWAY.

Office of the Chief Engineer,
Moncton, N.B., September 12, 1905.

Sir.—I have the honour to submit the following report on capital account expenditures for the fiscal year ending June 30, 1905.

HILLSBOROUGH BRIDGE.

Substructure.

North approach.—During the year, the remainder of the cribs to complete the work were built and placed along the toe of the slope.

The material forming the embankment was excavated by means of a steam shovel, and transported by locomotives and cars, from the borrow pit, situated on the P.E.I. Railway, about 1½ miles from Charlottetown, to the site. The work of filling began July 12, and was completed November 4—109,500 cubic yards of material having been excavated and placed in the work during that period. Owing to the great depth of soft mud at the site, great difficulty was experienced in forming the embankment; but the work was carried on vigorously, night and day. The slopes have been protected with rip-rap, haid laid to a height of four feet above extreme high water. When the trimming above this is done the work will be completed.

South approach.—A temporary trestle for the purpose of forming the embankment was built between the shore and the south abutment. The material obtained from borrow pits, situated on the right of way of the Murray Harbour Branch Railway, was excavated by a steam shovel, and transported by locomotives and cars to the site. The work of filling began November 15, and was completed December 17—27,100 cubic yards of material being used.

The work of protecting the slopes with hand laid rip-rap was commenced May 11 and completed June 3. The slopes and top of embankment have been trimmed and the approach completed.

Pier No. 11.—The stone masonry above the cut water was completed November 17.

General.—The work of protecting the foundations of the piers wth rip-rap and mud was carried on and completed during the year. Any necessary pointing of masonry has been done, and with the exception of the trimming of the north approach and some clearing up. The whole work under the contract is completed.

Superstructure.

The additional metal parts for floors and sidewalk, brackets, supplied under contract with the Dominion Bridge Company, Ltd., were delivered to the contractor as required from time to time throughout the year.

The swing span, to be erected under contract by the Dominion Bridge Company, Ltd., has not yet been placed on the piers.

The eleven spans previously forming the superstructure of the Miramichi bridge, were transported from that site, and the delivery in Charlottetown was completed early in September last. To expedite the work of erection, a second erecting stage was built in August.

The erection work began July 20, and the first span was floated to its position between piers 0 and 1, September 19. The second span was placed between piers 1 and 2 September 26. The third span between piers 2 and 3, October 13. The fourth span between piers 6 and 7, October 31. The fifth span between piers 7 and 8, November 16, and the sixth span between piers 8 and 9, on November 25. Work was suspended in December for the winter. The seventh span was placed in position between piers 5 and 6, May 24. The eighth span, between abutment A and pier 0, June 1, and the ninth span between piers 9 and 10, June 15. The tenth and eleventh spans are erected on the stages and ready to be floated to position on the piers.

Two hundred and thirty-three thousand feet B.M. of southern hard pitch pine, and 74,000 feet B.M. of white pine have been delivered for the flooring of the bridge and rest piers.

Connection between main line and Hillsboro' bridge.

This work was done under contract, and consisted in grading and completing the roadbed to formation level, laying ties and rails, building the necessary culverts for drainage, and fencing the right of way. The ballasting was done by day labour, and is now completed.

Improvements to water service.

A portion of the work was done under contract, and consisted of pipe laying for water supply at the following stations on the main line: Georgetown, Alberton, Hunter river, Harmony, West Devon, Summerside, Ashton and Mount Stewart.

Five thousand seven hundred and twenty cubic yards of excavation was made and refilled, and in all two miles of pipe laid. Work was begun in July and completed in September.

Charlottetown extension of tracks along water front.

This work consisted of the building of a spur line, one-quarter of a mile in length, to the Department of Marine and Fisheries wharf, at the foot of Great George street. The land for right of way was acquired and the work of construction completed. The material for filling the slip at the foot of Great George street was transported by locomotives and cars from borrow pits on the main, line and a temporary trestle was built at the slip to expedite the work of unloading.

Increased accommodation at Georgetown.

Plans and specifications have been prepared and a contract let for the construction of a pile wharf and addition to freight shed. A large quantity of material has been delivered on the ground for this work.

Murray Harbour Branch.

During the year the road was extended from Murray river to Murray harbour by contract, a distance of 4·56 miles.

Booking stations, way stations, shelters, platforms, and freight sheds and tool houses required were built by contract. Track tools were supplied, and all stations and offices supplied with necessary fittings. Eight thousand five hundred lineal feet of portable snow fences were built by contract.

Branch line to Vernon River bridge.

This is being done under contract, and the work is well advanced. Distance 4·59 miles.

To straighten lines at Curtis Creek.

This work was done by contract and is now completed. Length, 6,146 feet.

Branch line from Cardigan to Montague bridge.

This line is being built by contract and work is well advanced. Clearing has been completed. Including line excavation, about three-fourths done. Length, 6·38 miles.

Survey from main line to west shore.

The ground has been carefully examined and preparations made to complete the survey after the crops have been harvested.

Swing span, Morrell river bridge.

A contract was let for the superstructure and the shopwork is about completed. The creosoted piles and hard pine timber required have been ordered, but are not yet delivered.

Survey to New London.

Instrumental preliminary surveys were made, as follows: Route A, from Emerald junction, by the way of Greenville valley, via Stanley bridge, and stopping at Clifton, a distance of 13 miles. Route B, from Emerald junction through Clinton and Clifton, stopping at Stanley bridge, 13½ miles. Plans, profile and estimates were prepared in each case.

Survey from Souris or Harmony to Elmira.

Instrumental preliminary surveys were made, as follows: From Souris to Elmira, 13·2 miles; and from New Harmony, 2 miles, to join the other line at mile 5 from Souris, also plans, profiles and estimates prepared in each case.

Improvements at Summerside.

This consists of enlarging the grounds for the purpose of providing additional tracks, &c.

York station for freight shed.

This work has been done.

To enlarge freight shed at Bradalbane.

This work has been done.

Station at Pisville.

This building was erected by M. F. Schurman Co. by contract.

Station at St. Teresa.

This building was erected by M. F. Schurman by contract.

To widen wharf and provide coal shed at Summerside.

The coal shed was erected by contract by J. M. Clark & Co., and widening of the wharf done by day labour.

Dwelling for agent at Miscouche.

This building was erected by J. M. Clark & Co., by contract.

Dwelling for agent at Bloomfield.

This building was erected by J. M. Clark & Co., by contract.

To increase accommodation at Kensington.

A new station is under construction by contract with M. F. Schurman & Co.

New station at Alberton.

This building was completed December last by J. M. Clark & Co., contractors.

I am, sir, your obedient servant,

WM. B. MACKENZIE,

Chief Engineer.

D. POTTINGER, Esq.,
General Manager, Government Railways,
MONCTON, N.B.

PRINCE EDWARD ISLAND RAILWAY.

SUPERINTENDENT'S OFFICE,
CHARLOTTETOWN, P.E.I., September 1, 1905.

SIR,—I have the honour to submit the following report on the working of the Prince Edward Island Railway for the fiscal year ended June 30, 1905:—

I also enclose the report of the mechanical superintendent, and the following statements prepared by the accountant and auditor, and the mechanical accountant and storekeeper:—

No. 1. Capital account.
2. Revenue account.
3. Locomotive power (abstract No. 1).
4. Car expenses (abstract No. 2).
5. Maintenance of ways and works (abstract No. 3).
6. Station expenses (abstract No. 4).
7. General charges (abstract No. 5).
8. General store account.
9. General balance.
10. Comparative statement of averages.

A. Monthly statement of the cost of locomotive power.
B. Statement of performance and consumption of locomotives.
C. Monthly statement of car mileage.
D. Statement of the number of locomotives, cars, snow ploughs and flangers.
E. Comparative statement of the expenses of the mechanical department.

The mileage of the railway in operation is the same as last year, 209 miles.

CAPITAL ACCOUNT.

The total expenditure to June 30, 1904, was	$6,128,116 80
The additions during the year were as follows:—	
Survey to Montague bridge	0 09
To enlarge freight shed at Bradalbane	498 20
York—For freight shed	498 99
Survey from main line to west shore	529 16
Piusville—Station at	735 58
St. Teresa—Station at	845 35
Survey from Souris or Harmony to Elmira	1,083 35
To widen wharf and provide coal shed at Summerside	1,149 81
Survey to New London	1,412 46
Miscouche—Dwelling for agent at	1,490 63
Bloomfield—Dwelling for agent at	1,689 58
To increase accommodation at Kensington	3,999 98
New station at Alberton	4,499 09
To fit up locomotives and passenger cars for steam heating	4,822 00
Swing span for Morrel river bridge	4,929 65
Summerside—Improvements at	4,987 49
To increase accommodation at Charlottetown	10,205 10
Charlottetown—Extension of railway along water front	11,716 96
To improve water service	17,557 12
To increase accommodation at Georgetown	19,976 97
To straighten line at Curtis creek	21,498 51
To apply Westinghouse air brakes and air signals	22,566 05
To apply M.C.B. couplers to rolling stock	26,455 73
Branch line to Vernon river bridge	44,008 24
Branch line from Cardigan to Motague bridge	99,971 58
Murray harbour branch	151,131 13
Hillsborough bridge	133,153 85
Making the total cost on June 30, 1905	$6,719,529 45

Bradalbane, enlarged freight shed.—This building was completed by day's work.

York, enlarged freight shed.—This work was completed under contract by M. F. Schurman & Co.

Piusville station.—This building was erected by M. F. Schurman & Co., by contract.

St. Teresa station.—This building was erected by M. F. Schurman & Co., by contract.

Coal shed at Summerside.—This building was erected by J. M. Clark & Co., by contract. The widening of the wharf was done by day's work.

Miscouche, dwelling for agent.—This building was erected by J. M. Clark & Co., by contract.

Bloomfield, dwelling for agent.—This building was erected by contract by J. M. Clark & Co.

At Kensington.—A new station is under construction by contract by M. F. Schurman & Co., and will be completed the current year.

Alberton station.—This building was completed December last by J. M. Clark & Co., contractors.

Heating passenger cars by steam.—This work is in hand, and continued into the current year.

Summerside improvements.—This consists of enlarging the grounds for the purpose of providing additional tracks, &c. The work extends into the current year.

Charlottetown improvements.—The work that has been done consists of a filling made on the property purchased from the provincial government. Other purchases of land have been made for the purpose of additional yard room, and for the erection of a new station building.

Extension of railway along water front at Charlottetown.—This work consisted of grading and laying 1,130 feet of track to the marine wharf.

Water service.—Overhead tanks are being provided for watering locomotives and for providing water at station where practicable. The work is still in hand.

Georgetown accommodation.—An addition is being built to wharf and freight shed under contract.

Straightening line at Curtis Creek.—This work was carried forward from last year and completed this year.

Westinghouse air brakes.—These are being applied to all rolling stock, and this work will be completed the current year.

M.C.B. couplers.—These couplers are being applied to all rolling stock. The work extends into the current year.

Explanations of other capital expenditures are to be found in the report of the Chief Engineer.

REVENUE ACCOUNT.

The earnings, as anticipated last year as the result of a failure in crops, show a decline of nearly $20,000.00 in freight traffic. The passenger earnings were well maintained notwithstanding the extremely severe winter which disorganized and demoralized business for upwards of one month. The crops for the current year are good, and a largely increased business looked for.

The gross earnings and working expenses for the year compare as follows:—

Gross earnings	$217,330 61
Working expenses	370,464 44
Difference	$153,133 83

The gross earnings compare with the previous year as follows:—

In 1903-04	$234,390 03
1904-05	217,330 61
Decrease	$ 17,059 42

The earnings from passenger traffic compare as follows:—

In 1903-04	$102,378 49
1904-05	102,505 55
Increase	$ 127 06

The earnings from freight traffic compare as follows:—

In 1903-04	$114,061 59
1904-05	94,724 70
Decrease	$ 19,336 89

The earnings from mails and sundries compare as follows:—

In 1903-04	$ 17,949 95
1904-05	20,100 36
Increase	$ 2,150 41

The number of passengers carried compare as follows:—

In 1903-04	224,567
1904-05	235,194
Increase	10,627

The weight of freight carried compare as follows:—

	Tons.
In 1903-04	86,286
1904-05	73,969
Decrease	12,317

WORKING EXPENSES.

The working expenses compare with the previous year as follows:—

In 1903-04	$335,695 44
1904-05	370,464 44
Increase	$ 34,769 00

This increase is the result of the severe winter and snow blockade for upwards of a month. The expenditure in general was heavy in consequence of a large amount of work done in the maintenance department, and the cost of a locomotive charged to revenue. There were further increases also in wages during the year in the mechanical department.

The averages compare with the previous year as follows:—

Per mile run by engines.

	Cents.
In 1903-04	82·68
1904-05	83·72

Per mile run by trains.

In 1903-04	108·01
1904-05	107·91

Exepnditure per mile of railway.

In 1903-04	$1,606 09
1904-05	1772 55

TRACK.

Fifty thousand railway ties, 34 sets switch ties and 38 switch head-blocks with frames were renewed.

One thousand four hundred culled ties were used in yards and sidings.

Two and one-quarter miles of 56 pound steel rails were laid between Hunter River and Fredericton to replace 50 pound steel rails; two miles, 56 pound steel rails between Winsloe and Milton to replace 50 pound steel rails; one and one-quarter miles 50 pound steel rails to Alberton wharf to replace 40 pound iron rails; one mile 56 pound steel rails to Souris wharf to replace 40 pound iron rails, and six hundred and ninety feet 50 pound steel rails in Hunter river siding to replace 40 pound iron rails. In New Annan siding, 420 feet 50 pound steel rails were laid, and 2,400 feet 50 pound steel rails, steel frog and set switch gear in yard at Georgetown. Two new 56 pound steel frogs and 2 sets switch gear were laid at Bear river to replace iron frogs and switches.

During the year repairs were made to 7 hand cars: six new lorry tops were built; 6 track levels and 6 straight edges made.

SIDINGS.

One mile east of Tignish, a new siding, 186 feet, was put in.

At Kensington, 1,000 feet sidings were rebuilt.

At Suffolk, siding was extended 624 feet.

At Charlottetown, a new siding, 1,152 feet, was laid with 50-lb. steel rails and and angle plates, steel frog and switch gear.

In extending track to marine wharf, 2,260 feet 50-lb. steel rails, 1 steel frog and set switch gear were used.

FENCING.

There were 67,432 feet Page wire, and 4,275 feet barbed and web wire erected on new cedar posts; 18,235 feet new snow fence built, 400 panels portable snow fence built and placed where most needed, and other temporary snow fences erected during the winter.

All fences requiring repairs were attended to.

One hundred and fifty farm gates were renewed.

BALLASTING.

Three hundred and four cars ballast were distributed in places where most needed.

At Alberton, 1,500 cubic yards of clay were used in grading station grounds, and 500 cubic yards in grading and building new cattle pen at St. Teresa.

Three hundred and forty-seven cars clay were used in grading station grounds and widening embankments.

BRIDGES.

At Tignish, Pig brook bridge was painted, and received 15 hard pine ties.

At Harpers, bridge was painted.

At Alberton, Huntley river bridge was painted.

At Mill river, a new 28-foot span truss bridge was placed on a foundation of piles and concrete abutments to replace wooden structure at Haywood's mill stream. Material used: 40 piles, 20 feet long, 100 barrels cement, 50 tons broken stone, and 2 cars sand.

Near Bradalbane, a new 24-foot deck plate girder span was erected to replace wooden structure.

At Bradalbane, bridge was painted, and 10 hard pine ties renewed.

At Hunter river, a new 33-foot deck plate girder span was erected to replace wooden structure.

At Milton, the following material was used in building temporary trestle at Curtis creek: 36 tons hemlock timber and 300 iron butt bolts.

At lot 40, bridge was painted and 24 hard pine ties renewed.

At Morell, 6 hard pine ties were renewed in bridge.

At Marie, 7 hard pine ties were renewed in bridge.

At Five Houses, 26 hard pine ties were renewed in bridge.

At Naufrage, two 22-foot deck plate girder spans were erected.

At Souris, repairs were made to two overhead bridges.

At Peakes, Mooney's bridge received 10 hard pine trees.

All other bridges received necessary repairs .

CULVERTS.

At Alberton, one iron pipe culvert 18 inches diameter, 24 feet long, was put in to replace an old one worn out.

At Duvar, one iron pipe culvert, 18 inches diameter, 24 feet long, was put in.

At Cardigan, two iron pipe culverts were put in, one 24 inches diameter and 48 feet long, and the other 18 inches diameter and 24 feet long.

At Georgetown, two iron pipe culverts 18 inches diameter were put in, one being 60 feet and the other 36 feet in length.

Thirty-two wooden culverts were rebuilt with cedar, and 13 culverts repaired by using 10 barrels cement and 2 cars hard stone.

Thirty-two cattle-guards were rebuilt.

WHARFS AND BREASTWORKS.

At Summerside, in making repairs and improving wharf, the following material was used: 65 tons hemlock timber, 371 butt bolts, 179 screw bolts, 32 iron plates, 692 pounds spikes, 880 feet 3-inch hemlock plank, 10 pounds 10-dy. nails, 2 kegs 60-dy. nails, 24 creosoted piles, 48 hardwood piles, and 320 feet hard pine.

At Mount Stewart, the following material was used in repairing the wharf: 14 tons hemlock timber, 1,200 lineal feet 3-inch hemlock plank, 2 kegs nails, and 75 iron butt bolts.

At Charlottetown 26 tons hemlock timber, 15 spruce piles, 17 hardwood piles, 200 iron butt bolts, 39 cars brush, and 25 cars clay were used in repairing wharf. In repairing breastwork the following material was used: 27 tons hemlock timber, 13 hardwood piles, and 20 iron butt bolts.

BUILDING AND PLATFORMS.

Tignish.—A new kitchen was built to agent's dwelling. Repairs were made to coal shed and freight house. Agent's dwelling was painted inside and outside, and waiting-room and office were also painted. A cattle pen was built.

Alma.—A new station platfom was built.

Alberton.—Freight shed was repaired and painted.

O'Leary.—Roof of station was repaired, and necessary repairs made to doors and windows.

Ellerslie.—A station platform was built and repairs made to station.

Port Hill.—New rollers were placed on freight house doors. Doors and windows were repaired. Cattle pen was rebuilt.

Coleman.—A new gravel roof was placed on station.

Northam.—A station platform was made. A coal bin was built, and a ticket case made for station.

Richmond.—A station platform, ticket case and coal bin were made.

Summerside.—Front of station was shingled, and dwelling and engine house repaired. The following material was used in repairing coal shed; 50 tons hemlock timber, 60 butt bolts, 4 kegs spikes, 1,700 feet hemlock boards, 24 screw bolts, 750 feet hemlock plank and 1 keg nails. Coal shed and freight sheds were painted.

Kensington.—Repairs were made to doors and windows of agent's dwelling, and new rollers placed on freight house door.

Emerald.—Roof of station was shingled, and agent's dwelling and station platform repaired.

Kinkora.—A station platform and coal-bin were built, and ticket case for station made.

Albany.—A station platform and coal-bin were built. A ticket case was made for station.

Cape Traverse.—A new pit was made in engine house.

Bradalbane.—An addition of 25 feet to freight house, and a kitchen for agent were built. Agent's dwelling was painted inside and outside, and new freight house was also painted.

Fredericton.—A station platform and coal-bin were made, and ticket case furnished for station.

Royalty Junction.—Station and platform received repairs. Agent's dwelling was papered and painted inside.

York.—Station was raised 1 foot 8 inches, and new sills placed under it. A station platform was made. Freight house and dwelling were painted.

Mt. Stewart.—Station, station platform, and coal shed received repairs.

St. Andrews.—A station platform was made.

St. Peter's.—Agent's dwelling was removed to a more suitable location, and placed on a new stone foundation. A new kitchen was added to dwelling, and dwelling thoroughly renovated and painted and papered inside. Repairs were made to station platform.

Waiting-room and office were painted.

Souris.—Station and freight houses were repaired. A platform was made for freight house at station.

Peakes.—Station was painted and repaired.

Cardigan.—Waiting-room and office were painted, and repairs made to station and platform.

Georgetown.—A new end was put in warehouse on wharf, and engine house repaired.

Charlottetown.—Coal shed was raised 2 feet, and the following material used for making repairs to it; 8 tons hemlock timber and 75 butt bolts.

All other buildings along the line requiring repairs were attended to.

STORES.

The value of stores purchased was	$253,912 65
The value of stores used was	291,764 88
The value of old material sold was	9,015 33

The value of stores on hand at the end of the year was:—

Ordinary stores	$ 30,875 45
Fuel	12,049 13
Steel rails and fastenings	9,696 61
Old material for sale	36,163 42
	$88,784 61

GENERAL.

The rolling stock, road-bed, and buildings have all received necessary attention and are now in a higher state of efficiency than at any time during the past.

I inclose a return of minor casualties which occurred during the year.

I have the honour to be, sir,

Your obedient servant,

G. A. SHARP,
Superintendent.

D. POTTINGER, Esq., I.S.O.,
General Manager, Canadian Government Railways.
Moncton, N.B.

PRINCE EDWARD ISLAND RAILWAY.

ACCIDENTS during Year ended June 30, 1905.

Cause of Accident.	Passengers.		Employees.		Others.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured
1. Fell from cars or engine								
2. Jumping on or off trains or engines when in motion				1				1
3. At work on or near the track making up trains				1				1
4. Putting arms or heads out of windows								
5. Coupling cars				4				4
6. Collision or by trains thrown from track								
7. Struck by engines or cars on highway crossings								
8. Walking, standing, lying, sitting, or being on track								
9. Explosions								
10. Striking bridges								
11. Other causes				8				8
Total				14				14

PRINCE EDWARD ISLAND RAILWAY.

OFFICE OF THE MECHANICAL SUPERINTENDENT.
CHARLOTTETOWN, P.E.I., July 25, 1905.

SIR,—I beg to submit for your information the following statement of the operation of the mechanical department, for the year ended June 30, 1905.

The following is a summary of the principal work performed:—

LOCOMOTIVES.

One new locomotive was purchased from the Canadian Locomotive Company, Kingston, Ontario.

Nine engines received heavy repairs, and 10 engines specific repairs.

Engine No. 10 received new fire box, wheel centres, axles, crank pins, truck boxes, side rod straps, pistons, valves, mountings in cab, eccentrics, eccentrics straps, and had all running gear renewed. Eight engines received new driving and engine truck boxes, and had all running gear renewed. Two engines received new cabs. One engine had frames and cylinder broken, smoke box stove in, axle of engine and tender trucks bent, and tender badly broken, which was repaired. Four cylinders were broken while snow fighting in the winter; one completely destroyed, which was replaced. Ten new locomotive smoke stacks were built. Twelve hundred tubes were pieced and put into locomotives. Four pop valves, 6 whistles, 120 sets steam packing, and 12 pilots were made. Fourteen injectors were largely rebuilt. Three hundred and fifty wheels were bored out and pressed on axles. One hundred and forty car axles, 85 car wheels, 24 sets driving wheels, and one set of driving wheels and axles were turned. Sixteen engine wheel tires were bored out. One hundred and sixty-eight driving and engine truck springs were made and repaired. Two hundred and twenty-three thousand, two hundred and fifty-five pounds of iron, and 1,539 pounds of steel were forged. Five thousand, seven hundred and seventy-three pounds of nuts were tapped. Westinghouse air brakes were applied to 9 locomotives.

CAR DEPARTMENT.

Two second-class cars, one full baggage car, two coal cars, 3 box cars, 1 snow plough (except wings and cutters) were built and charged to Murray harbour branch capital account. One full baggage, and 1 postal and smoking car are now under construction, which will also be charged to Murray harbour branch capital account. Ten flat cars, 2 stock cars, 1 snow plough and 1 flanger were rebuilt. Twenty-five box cars, 18 flat cars, 2 flangers and 2 snow ploughs received heavy repairs. Eight first-class cars, 6 second-class cars, 20 box cars, 3 stock cars, 15 flat cars, and 2 flangers received light repairs. Westinghouse air brakes were applied to 21 passenger cars and 168 freight cars.

BRASS FOUNDRY.

Output.—9,787 pounds brass castings.

PAINT SHOP.

Three first-class cars, 4 second-class cars, 1 postal car, 22 box cars, 18 flat cars, 9 snow ploughs, 138 box car roofs, 5 hand cars, and 90 switch frames were painted, and 8 hand cars, 4 lorries, 54 station seats, 10 coal boxes, and 7 ticket cases were

painted for the Murray harbour branch stations. Eleven first-class cars, 8 second-class cars, and 7 postal cars were cleaned and varnished. Six hundred panes of glass were put in buildings. Northam, Richmond, Fredericton, Albany and Kinkora station were lettered.

ROAD AND TRAFFIC DEPARTMENTS.

Twenty-six loading platforms, 6 cattle stages, 2 gates, 2 coal waggons, 3 wheelbarrows, 3 baggage trucks, 6 boxes for yearly papers, 20 boxes for stores, 2 boxes for machine shop, 8 freight trucks, 9 hand cars, 6 lorries, 1 ticket case, 1 large set of drawers, 64 station seats, 11 coal boxes, 7 blackboards, 7 baggage check cases, 7 station signals, and 15 sets switch gear were made. Four new frogs were made and several repaired. Sixteen switch frames were made and mounted. Fifty barrel plugs were cut. Ties were fitted on four iron bridges. Twelve thousand, five hundred and forty pounds of iron and five hundred and six pounds of steel were forged. Three hundred and twenty pounds of nuts were tapped. Two bridges were cut, rivetted and braced.

We have applied steam heat to the carpenter shop.

Yours truly,

W. S. POOLE,

Mechanical Superintendent.

G A. SHARP, Esq.,
Superintendent, P.E.I. Ry.,
Charlottteown.

No. 1. PRINCE EDWARD ISLAND RAILWAY.

Capital Account.

1904.			$ cts.	1904.		$ cts.
June 30.	To cost of road and equipment to date		6,128,116 80	June 30.	By Dominion of Canada	6,128,116 80
1905.				1095.		
June 30.	To expenditure, year ended June 30, as follows:—			June 30.	By Dominion of Canada	591,412 65
	Survey to Montague	$ 0 09				
	Addition to freight shed, Bradalbane	498 20				
	Freight shed, York	498 99				
	Survey to West Shore	529 16				
	Station at Piusville	735 58				
	Station at St. Teresa	845 35				
	Survey to Elmira	1,083 35				
	Coal shed and widening wharf, Summerside	1,149 81				
	Survey to New London	1,412 46				
	Agent's dwelling, Miscouche	1,490 63				
	Agent's dwelling, Bloomfield	1,689 58				
	Increased accommodation Kensington	3,999 98				
	New Station, Alberta	4,499 09				
	Steam heating on locomotives and cars	4,822 00				
	Swing span, Morell River Bridge	4,929 65				
	Improvements, Summerside	4,987 49				
	Increased accommodation, Charlottetown	10,205 10				
	Railway extension along water front at Charlottetown	11,716 96				
	Improvements in water service	17,557 12				
	Increased accommodation, Georgetown	19,976 97				
	Straightening line, Curtis Creek	21,498 51				
	Westinghouse air brakes and signals	22,566 05				
	"M.C.B." couplers on rolling stock	26,455 73				
	Branch line to Vernon river bridge	44,008 24				
	Branch, Cardigan to Montague bridge	99,971 58				
	Hillsborough bridge	133,153 85				
	Murray harbour branch	151,131 13				
			591,412 65			
			6,719,529 45			6,719,529 45

Charlottetown, P.E.I., June 30, 1905.

W. L. HUGGAN,
Accountant and Auditor.

No. 2.—PRINCE EDWARD ISLAND RAILWAY.

REVENUE ACCOUNT for Year ended June 30, 1905.

Previous Year.	Expenditure.	Year ended June 30, 1905.	Previous Year.	Receipts.	Year ended June 30, 1905.
$ cts.		$ cts.	$ cts.		$ cts.
115,474 46	Locomotive power, per Abstract No. 1	109,541 81	102,378 49	Passenger traffic	102,505 55
54,345 93	Car expenses, per Abstract No. 2	56,696 00	114,061 59	Freight traffic	94,724 70
103,826 40	Maintenance of ways and works, per Abstract No. 3	136,138 50	17,949 95	Mails and sundries	20,100 36
			234,390 03	Total receipts	217,330 61
46,455 93	Station expenses, per Abstract No. 4	51,881 94	101,305 41	Balance	153,133 83
15,592 72	General charges, per Abstract No. 5	16,206 19			
335,695 44	Totals	370,464 44	335,695 44	Totals	370,464 44

W. L. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1905.

No. 3.—PRINCE EDWARD ISLAND RAILWAY.

LOCOMOTIVE POWER (Abstract No. 1).

Previous Year.	Details.	Year ended June 30, 1905.
$ cts.		$ cts.
2,447 04	Mechanical superintendent's salary, clerks, office and travelling expenses	2,519 79
30,951 53	Wages of drivers, firemen and cleaners	31,420 60
39,067 03	Fuel	36,263 70
2,080 29	Oil, tallow, waste and small stores	1,842 61
37,843 48	Repairs to engines, tenders and engine tools	33,574 32
554 62	Water, including pump and tank repairs	819 10
2,530 47	Miscellaneous	3,101 69
115,474 46	Totals	109,541 81

W. L. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1905.

No. 4.—PRINCE EDWARD ISLAND RAILWAY.

Car Expenses (Abstract No. 2).

Previous Year.	Details.	Year ended June 30, 1905.
$ cts.		$ cts.
6,156 88	Repairs to passenger cars	6,013 08
1,469 61	Repairs to postal, express and baggage cars	1,452 51
7,808 32	Repairs to freight cars and vans	10,170 04
1,540 00	Repairs to snow ploughs and flangers	1,820 41
30,738 30	Wages of conductors, train baggage masters and brakemen	30,303 43
660 90	Oil and waste for packing	666 94
4,432 35	Small stores and fuel	4,679 01
1,539 57	Miscellaneous	1,590 58
54,345 93	Totals	56,696 00

W. L. HUGGAN,

Charlottetown, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 5.—PRINCE EDWARD ISLAND RAILWAY.

Maintenance of Way and Works (Abstract No. 3).

Previous Year.	Details.	Year ended June 30, 1905.
$ cts.		$ cts.
331 42	Engineer's salary, clerks, office and travelling expenses	384 02
49,047 56	Wages in repairing roadway, fences and semaphores	43,282 55
2,624 10	Rails, chairs and spikes	5,399 79
25,083 29	Ties	20,732 36
4,834 88	Timber and lumber for repairs to bridges, cattleguards, &c.	8,618 91
2,618 43	Repairs to wharfs	5,310 04
5,976 55	Repairs to buildings and platforms	6,548 63
1,520 05	Repairs to tools	1,535 26
11,790 12	Clearing ice and snow	44,326 94
103,826 40	Totals	136,138 50

W. L. HUGGAN,

Charlottetown, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 6.—PRINCE EDWARD ISLAND RAILWAY.

Station Expenses (Abstract No. 4).

Previous Year.	Details.	Year ended June 30, 1905.
$ cts.		$ cts.
37,461 34	Salaries and wages of station masters, agents, clerks, telegraph operators, station baggage masters, yardmasters, switchmen, watchmen and labourers	41,995 98
8,994 59	Fuel, oil, light, stationery and other incidental expenses	9,885 96
46,455 93	Totals	51,881 94

W. L. HUGGAN,

Charlottetown, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 7.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL CHARGES (Abstract No. 5).

Previous Year.	Details.	Year ended June 30, 1905.
$ cts.		$ cts.
7,804 84	Superintendent's and train despatchers' salaries, clerks, office and travelling expenses	8,223 65
5,558 51	Accountant and auditor's, paymaster's and cashier's salaries, clerks, office and travelling expenses	5,570 49
377 40	Advertising	635 14
1,419 23	Damages to men, animals and goods	795 91
359 99	Telegraph expenses (not including pay to operators)	676 98
72 75	Miscellaneous	304 02
15,592 72	Totals	16,206 19

W. L. HUGGAN,

CHARLOTTETOWN, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 8.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of General Stores Account.

1904.	DR.	$ cts.	$ cts.
June 30.	To Balance brought forward		99,809 72
1905.			
June 30.	Purchases during the year, including rails	253,912 65	
	Charges from other departments	25,268 41	
	Pay rolls	1,558 66	
			280,739 72
	CR.		380,549 49
June 30.	By issues during the year		291,764 88
	Balance — Ordinary stores $ 30,422 95		
	Balance — Fuel 12,049 13		
	Balance — Rails and fastenings on hand 45,860 03		
	Balance — Old material serviceable 452 50		88,784 61

W. T. HUGGAN,

CHARLOTTETOWN, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 9.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL BALANCE.

	$ cts.		$ cts.
General stores	88,784 61	Dominion account	109,080 10
Cash	6,255 93	John McDougall & Company	488 75
Stations	2,036 48	Gowrie and Blockhouse Collieries Company, Ltd.	2,592 35
Through ticket ledger	193 31	M. J. Haney	2,922 74
Post Office Department	13,082 10		
Militia Department	77 49		
Anglo-American Telegraph Company	46 43		
Judge Weatherbie	30 00		
Sidney Grey	30 00		
Railway Extension, Charlottetown	812 83		
Accident Insurance	2,313 97		
Rhodes, Curry & Company	428 87		
Intercolonial Railway	787 86		
Canadian Express Company	204 06		
	115,083 94		115,083 94

W. T. HUGGAN,

CHARLOTTETOWN, P.E.I., June 30, 1905. *Accountant and Auditor.*

No. 10.—PRINCE EDWARD ISLAND RAILWAY.

COMPARATIVE STATEMENT of Averages for the years ended June 30, 1905 and 1904.

Details.	1905.	1904.
Mileage of railway open	209	209
Engine mileage	442,493	406,007
Train mileage	343,301	310,785
Car mileage	1,683,203	1,822,737
Receipts per engine mile ..... Cents	49.11	57.73
" mile of railway ..... Dollars	1,039.86	1,121.48
Percentage of passenger earnings to gross receipts	47.17	43.68
" freight " "	43.58	48.66
" other " "	9.25	7.66
Expenses per engine mile:—		
Drivers, firemen and cleaners' wages	7.10	7.63
Fuel	8.19	9.62
Oil, tallow, waste and small stores	.42	.51
Repairs to engines	7.59	9.32
Water and tank repairs	.18	.14
Miscellaneous	.70	.62
	24.18	27.84
Mechanical superintendent's salary, office and travelling expenses	.57	.60
Total ..... Cents	24.75	28.44
Locomotive power, per engine mile	24.75	28.44
Car expenses	12.81	13.39
Maintenance of way and works, per engine mile	30.77	25.57
Station expenses	11.73	11.44
General charges	3.66	3.84
Total ..... Cents	83.72	82.68
Locomotive power, per train mile	31.91	37.15
Car expenses	16.51	17.49
Maintenance of way and works	39.66	33.41
Station expenses	15.11	14.94
General charges	4.72	5.02
Total per train mile ..... Cents	107.91	108.01
Working expenses, per mile of railway ..... Dollars	1,772.55	1,606.09

W. T. HUGGAN,

CHARLOTTETOWN, P.E.I., June 30, 1905. *Accountant and Auditor*

A.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Statement of Cost of Locomotive Power for the Year ended June 30, 1905.

Months.	Miles run by Engines, less Ballasting.	Cost of								Average per 100 Miles.							
		Mechanical Superintendent's Salary, Clerks and Office Expenses.	Enginemen's Wages.	Fuel.	Oil, Waste, &c.	Repairs.	Engine Houses and Turntables.	Water.	Total.	Mechanical Superintendent's Salary, &c.	Enginemen's Wages.	Fuel.	Oil, Waste, &c.	Repairs.	Engine Houses and Turntables.	Water.	Total.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1904—July	33,382	106 37	2,191 30	2,786 51	137 76	1,544 25	175 03	163 85	7,105 07	0 32	6 56	8 34	0 42	4 63	0 52	0 49	21 28
August	33,472	205 99	2,227 16	2,889 59	166 99	1,253 82	203 44	35 17	6,982 16	0 62	6 65	8 63	0 49	3 75	0 61	0 10	20 85
September	32,796	205 36	2,038 18	3,175 17	146 03	1,223 45	236 41	1 59	7,026 19	0 62	6 21	9 68	0 44	3 73	0 73	0 01	21 42
October	33,187	224 12	2,278 66	3,233 12	145 23	1,542 33	289 30	5 95	7,718 71	0 67	6 86	9 74	0 44	4 65	0 87	0 02	23 25
November	33,833	206 70	2,414 44	3,672 70	189 77	2,163 09	328 36	176 28	9,151 34	0 61	7 14	10 85	0 56	6 39	0 97	0 52	27 04
December	36,899	231 94	2,600 18	3,809 86	196 55	2,268 03	384 80	.....	9,491 36	0 63	7 04	10 33	0 53	6 15	1 04	0 00	25 72
1905—January	32,244	218 53	2,727 67	3,921 95	214 63	2,606 21	417 09	172 30	10,278 38	0 67	8 46	12 16	0 66	8 08	1 30	0 54	31 87
February	49,871	205 55	3,570 73	2,735 48	73 49	3,578 17	394 74	57 90	10,616 06	0 41	7 16	5 49	0 14	7 17	0 79	0 12	21 28
March	49,975	271 28	3,041 55	3,281 36	113 69	1,716 64	230 56	21 78	8,676 86	0 54	6 09	6 57	0 22	3 44	0 46	0 04	17 36
April	37,649	215 67	2,554 12	1,226 85	95 03	1,948 85	113 15	184 28	6,337 95	0 57	6 78	3 26	0 25	5 18	0 30	0 49	16 83
May	37,039	181 56	2,930 88	2,447 88	233 56	2,570 44	157 64	.....	8,521 96	0 49	7 91	6 61	0 63	6 94	0 42	0 00	23 00
June	32,146	246 72	2,845 73	3,083 23	129 88	11,159 04	171 17	.....	17,635 77	0 77	8 85	9 60	0 40	34 71	0 53	0 00	54 86
Totals	442,493	2,519 79	31,420 60	36,263 70	1,842 61	33,574 32	3,101 69	819 10	109,541 81	0 57	7 10	8 19	0 42	7 58	0 70	0 19	24 75

Note.—In repairs for June is included the cost of one new engine, No. 19.

S. F. HODGSON,
Mechanical Accountant.

PRINCE EDWARD

MECHANICAL

STATEMENT of the Performance and Consumption

MONTHS.	Hours in Steam.	TRAIN MILEAGE.				MILEAGE BY ENGINES.			
		Passenger.	Freight and Mixed.	Ballasting.	Piloting.	With Train.	Light.	Shunting.	Total.
1904—July	3,674	11,877	14,199	522	103	26,701	49	7,334	34,084
August	3,586	11,726	14,648	625	.....	26,999	05	7,178	34,182
September	3,511	11,102	14,332	283	301	26,018	76	7,063	33,157
October	3,750	11,405	14,227	1,273	.....	26,905	167	7,583	34,655
November	3,604	11,346	14,542	359	.....	26,247	.....	8,055	34,302
December	3,802	11,447	16,172	.....	92	27,711	210	8,978	36,899
1905—January	3,874	10,051	12,084	.....	1,632	23,767	237	8,240	32,244
February	5,586	2,041	41,866	.....	597	44,504	20	5,347	49,871
March	5,763	8,922	27,531	.....	4,316	40,769	259	8,947	49,975
April	4,176	9,816	15,923	.....	478	26,217	90	11,342	37,649
May	4,369	10,675	15,961	1,205	102	27,943	251	10,270	38,464
June	4,284	10,669	13,070	6,968	48	30,755	80	8,999	39,834
Totals	49,979	121,077	214,555	11,235	7,669	354,536	1,444	99,336	455,316

SESSIONAL PAPER No. 20

ISLAND RAILWAY.

DEPARTMENT.

of Locomotives for year ended June 30, 1905.

TOTAL MILEAGE.		AVERAGE MILEAGE.			CONSUMPTION.				CONSUMPTION PER 100 MILES RUN BY ENGINES.			
Cars.	Snow Ploughs.	Average of Cars per Mile run with train.	Miles to one hour in steam.	Of Cars to one of Engines.	Tons of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.	Pounds of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.
167,762	.....	6·31	9.27	4.92	756	2,056	548	626	4,968	6.03	1.60	1.83
160,149	.....	5·93	9.53	4.68	681	2,092	524	638	4,462	6.12	1.53	1.86
155,622	.....	6.05	9·44	4.69	750	1,788	482	557	5,066	5.39	1.45	1.68
160,344	.....	5.96	9.24	4.62	809	1,792	460	640	5,229	5.17	1.32	1.84
160,861	.....	6.13	9.52	4.69	813	1,736	520	646	5,309	5.06	1.51	1.88
158,483	852	5.74	9.70	4.29	909	1,970	500	691	5,518	5.34	1.35	1.87
109,530	10,640	4.94	8.32	3.39	880	1,936	584	631	6,113	6.00	1.81	1.95
27,251	25,672	0.62	8.92	0.55	664	1,220	430	304	2,982	2.44	0.86	0.61
105,408	20,454	2.89	8.67	2.11	916	2,130	544	543	4,106	4.26	1.09	1.09
159,803	1,284	6.21	9.01	4.24	773	1,780	608	557	4,599	4.72	1.61	1.48
189,967	.....	6.82	8.80	4.94	919	1,896	564	673	5,351	4.93	1.46	1.75
200,114	.....	6.51	9.30	5.02	876	1,932	556	621	4,926	4.85	1.39	1.56
1,755,294	58,902	5.06	9.11	3.85	9,746	22,328	6,320	7,127	4,794	4.90	1.39	1.56

S. F. HODGSON,
Mechanical Accountant.

C.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Monthly Statement of Car Mileage for year ended June 30, 1905.

Months.	First Class.	Second Class and Baggage.	Postal and Smoking.	Box Stock.	Platform.	Total.
1904—July	37,331	21,872	31,946	54,928	21,685	167,762
August	31,984	23,274	31,230	52,323	21,338	160,149
September	37,091	24,829	30,112	49,733	13,857	155,622
October	29,722	24,156	31,259	59,866	15.341	160,344
November	26,515	21,700	29,944	68,453	14.249	160,861
December	28,017	22,688	31,037	63,574	13,167	158,483
1905—January	20,352	17,261	19,927	43,263	8,727	109,530
February	4,166	5,527	10,545	4,977	2.036	27,251
March	20,834	16,489	19,233	38,213	10,639	105,408
April	23,948	19,191	25,907	83,283	7,474	159,803
May	24,864	22,931	33,177	87,515	21,480	189,967
June	26,068	21,252	37,307	60,109	55,378	200,114
Totals	310,892	241,170	331,624	666,237	205,371	1,755,294
Less—Ballasting	.....	.....	9,731	.....	62,360	72,091
Net mileage	310,892	241,170	321,893	666,237	143,011	1,683,203

S. F. HODGSON,
Mechanical Accountant.

SESSIONAL PAPER No. 20

D.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Statement showing the number of Locomotives and of the various classes of Cars and other Rolling Stock on July 1, 1904, and on June 30, 1905

	Locomotives.	Classification of Cars.															Snow Ploughs.	Flangers.	Total.
		1st Class.	2nd Class.	Combined 2nd and Baggage.	Postal and Smoking.	Combined Postal and Baggage.	Baggage.	Pay Car.	Vans.	Box Freight.	Refrig'rator Cars	Stock.	Coal.	Platform.	Total.			
On hand, serviceable, June 30, 1904	26	23	10	6	3	3	3	1	3	220	3	21	20	147	463	9	7	16
Condemned, July 1, 1904	1					1	1		1						3			
Total	27	23	10	6	3	4	4	1	4	220	3	21	20	147	466	9	7	16
Built during the year on capital account			2		1		2			3			2		10	1	2	3
Total	27	23	12	6	4	4	6	1	4	223	3	21	22	147	476	10	9	19
Condemned, July 1, 1904	1					1	1		1						3			
" during the year				1								2	1	12	16	1		1
Total condemned	1			1		1	1		1			2	1	12	19	1		1
Less rebuilt												2		10	12			
" purchased and charged to working expenses	1																	
To be rebuilt				1		1	1		1				1	2	7	1		1
Add serviceable and repairing	27	23	12	5	4	3	5	1	3	223	3	21	21	145	469	9	9	18
Total	27	23	12	6	4	4	6	1	4	223	3	21	22	147	476	10	9	19

S. F. HODGSON,
Mechanical Accountant.

PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Comparative Statement of the Expenses of the Mechanical Department for the years ended June 30, 1904 and 1905.

	1904.	1905.
The miles run by trains were	310,785	343,301
" engines were	406,007	442,493
" cars were	1,822,737	1,683,203
" Snow ploughs were	36,221	58,902
	$ cts.	$ cts.
The cost of Locomotive power was	115,474 46	109,541 81
" repairs to cars was	15,434 81	17,635 63
" " passenger cars was	6,156 88	6,013 08
" " smoking and postal cars was	1,469 61	1,452 51
" " freight cars and vans was	7,808 32	10,170 04
" labour, oils and waste was	660 90	666 94
" repairs to snow ploughs and flangers was	1,540 00	1,820 41
The cost of locomotive power per 100 miles run by trains was	37 16	31 90
" " " " engines was	28 44	24 75
" " " " cars was	6 33	6 51
The cost of repairs to cars per 100 miles run by trains was	4 97	5 13
" " " " engines was	3 80	3 98
" " " " cars was	0 84	1 05
The cost of labour, oils and waste for packing per 100 miles run by trains was	0 21	0 19
" " " " " engines	0 16	0 15
" " " " " cars was	0 03	0 03
The repairs to passenger cars per 100 miles run by trains were	1 98	1 36
" postal and smoking cars were	0 47	0 32
" freight cars and vans were	2 51	2 30

S. F. HODGSON,
Mechanical Accountant.

QUEBEC CANALS.

OFFICE OF THE SUPERINTENDING ENGINEER,
MONTREAL, August 26, 1905.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

SIR,—I have the honour to submit herewith my annual report on the works under my charge for the fiscal year ended June 30, 1905.

This division comprises the Lachine, Soulanges and the Beauharnois canals on the St. Lawrence route: the Ste. Anne's, the Carillon and Grenville canals on the Ottawa river and the St. Ours and the Chambly canals, on the Richelieu river.

Of these, the Lachine canal is by far the most important on account of its immediate connection with the harbour of Montreal.

I am pleased to say that, no serious accident occurred during the last fiscal year, and that navigation was conducted throughout without interruption.

LACHINE CANAL.

Length, 8½ miles; 5 locks, 270 x 45 feet; 14 feet of water on sills; total rise, 45 feet.

Old locks, 200 x 45 feet, still available with 9 feet of water on sills.

REPAIRS AND RENEWALS.

A very large amount of work was performed towards maintaining this canal in good order during the year.

The altered conditions of the St. Lawrence navigation in the last year necessitated numerous alterations in and additions to the original structures here.

The principal items of work done were as follows:—

LOCKS AND LOCK GATES.

Besides ordinary repairs to all the gates on the various locks, three pairs of old gates were thoroughly overhauled. They are intended for old locks 3, 4 and 5. The upper parts of all the gates as well as the crab winches and opening gear were scraped and painted. Pointing was done at all the locks and various basin walls.

The upper sill and breast wall of lock No. 4 were partly rebuilt and carefully grouted.

BRIDGES.

The Wellington swing bridge was raised during the winter and its pivot which was broken, was renewed and replaced by a new and much stronger one. No further trouble was experienced.

All the other bridges were scraped, painted and the roadways recovered with oak plank where required.

MASONRY AND CONCRETE WORK.

A heavy block of concrete was laid at the upper entrance to new lock No. 1, south side. It is faced with steel plate and a strong cast-iron mooring post was placed in the centre of it. The masonry at this point had proved too light for the large vessels using the lock and had been considerably damaged the year before. The concrete monolith here described will also act as a protection to the lock gates.

The concrete wall built last year along the south side of the regulating weir at Cote St. Paul, was extended some 125 feet to a point near the outlet of the race and an iron railing 145 feet long erected on the coping.

The pier forming the north side of this tail-race which had been considerably undermined by water coming out of the lock, was made safe by underpinning it with concrete.

The masonry at the north-west corner of Wellington basin was reinforced by the building of a block of concrete similar to the one placed at the head of lock No. 1.

WHARFS.

Extensive repairs were made as follows:—

Market wharf, north side of basin No. 2, new stringers and planking. Wharf at Montreal warehouse, flour basin No. 1, new stringers and planking, resetting coping stones. St. Gabriel, basin No. 1, refilling cribwork, renewing superstructure and plank facing, roadway on top covered with a thick layer of cinders and strong iron mooring posts placed in concrete blocks every 30 feet.

MOORING POSTS.

Forty-seven large cast iron mooring posts, set in concrete were placed on new blocks Nos. 1, 2, 3, 4 and 5. Every one of the large locks on this canal is now equipped with 16 such heavy posts.

Forty-two heavy cast-iron nigger heads also set in concrete were placed at various points. Both posts and nigger heads are very much appreciated by the vessel men and constitute an effective protection for the canal structures.

A large number of wooden mooring posts along the various reaches were lifted and reset and 25 new ones planted.

BUILDINGS.

A fire occurred in the canal power house station and sawmill on Mill street last fall. The mill was being used at the time by the Montreal Harbour Commissioners, who paid the cost of repairs out of an insurance policy they had taken on the building and machinery. All the various buildings, lock houses, sheds, stores, &c., were kept in good order throughout the year.

LIFE PROTECTION LADDERS.

Ladders were placed on the walls of new basin No. 1 and St. Gabriel basin No. 4.

BOOMS.

New booms were placed at the following points on this canal during the year: North side upper entrance to lock No. 3, 400 feet long and 5 feet wide; north side of canal, upper entrance to lock No. 4, 600 feet long and 5 feet wide; south side of canal, lower entrance to lock No. 5, 200 feet long and 3 feet wide; north side of canal, lower entrance to lock No. 5; north and south side of canal at Canadian Pacific Railway bridge at Lachine,, 200 feet by three feet each.

ROADWAYS, DRAINS AND FENCES.

All the roadways, drains and fences, on both sides of the canal were kept in good repair during the year. A new fence and sidewalk were built along Cote St. Paul road from the canal to the south side of River St. Pierre, the roadway being widened a few feet at the same time.

TIMBER BASINS.

The timber basins at Lachine were cleared of all sunken logs last fall. Some large boulders were also removed. This timber is now being disposed of.

REPAIRS TO VESSELS.

The Quebec canal dredging fleet, with headquarters in Montreal, consists of the following vessels, viz.: Tug *Frank Perew*, tug *Ernest*, steam Dredge No. 2, steam Derrick No. 2, house boat for men, one dump scow, eight flat scows and one coal scow.

Besides keeping these various boats in good repair, the following special works were performed during the year:—

Tug *Frank Perew*.—Putting in a new stern post, replacing water heater by a steel one with copper tubes.

Steam Dredge No. 2.—Repairing and strengthening engine frame. Renewing main gear of swinging frame. Bracing crane and renewing bucket teeth.

Steam Derrick No. 2.—Overhauling derrick and swinging frame.

Scows.—All the scows were carefully overhauled before the opening of navigation.

House boat.—This boat was entirely remodelled during the winter. New rooms were provided and a crew of twelve men are now accommodated with comfortable sleeping quarters on board of it. This is most useful at all times, but especially so when the fleet is at work at points some distance from towns. The dredging fleet is under the supervision of Mr. W. O'Brien.

INCOME.

Lock gates.—The necessary gates for the new enlarged locks at Montreal were completed last spring, and two pairs of spare ones also built. Some of those gates are now in position and the others will be placed during the present season.

REPAIRING OLD LOCKS NOS. 1 AND 2.

The work is practically completed. The contractors, Messrs. Quinlan & Robertson, began removing their plant in the beginning of July, and it is expected that the locks can be opened to traffic during the present season.

The new locks are of the same dimensions as those on the south side, and will prove a great help to the heavy traffic in the lower sections of this canal.

WIDENING WHARF, BASIN NO. 1.

This work consisted in building a concrete wall with masonry facing, from the coping to a line 12 inches below water parallel with the old south wall of the basin and 24 feet north of it, the space between the two being filled with clay from the excavation and a good macadamized roadway provided, the entire width of both the old wharf and its extension. The end walls were also partly rebuilt and generally repaired.

As the area of old basin No. 1 was materially reduced, it was thought advisable to connect it with new basin No. 1, in order to avoid an excessive lowering of the level after heavy locking. This was obtained by means of a culvert, consisting of two con-

crete arches 18 feet span each, the top of which is about 4 feet below normal water level in the basins, or under ice line. This culvert will ensure constant equalizing and regulating of the levels in both basins. Isolation of the basins for repairs, &c., is secured by means of stop logs placed across both arches.

This work is fully completed and the final estimate in favour of the contractors, Messrs. Quinlan & Robertson, is in course of preparation.

REBUILDING WALL ON SOUTH SIDE OF BASIN NO. 2.

As stated in last year's annual report, this work had been commenced a few years ago and performed by day's labour. It consists of underpinning the old wall to a depth of 9 feet and building a concrete facing 4 feet thick and securely joined to the old work.

At the end of last season there remained to be done about 600 feet of the underpinning as well as the whole of the facing.

This work, which is now completed, was done under contract by Messrs. Quinlan & Robertson.

REBUILDING GOVERNMENT DRY DOCK.

The old timber walls, mitre sills and masonry abutments for the lock gates of this dock were completely decayed. They were entirely rebuilt. The timber sides of the lock chamber have been strongly anchored to concrete pillars placed at the back of them, and concrete substituted for masonry in the gate abutments.

The flume used for emptying the dock was also thoroughly overhauled.

The whole of the work which was done under contract by Messrs. Quinlan & Robertson, being completed in the time specified.

RAISING ST. GABRIEL NO 1, &C.

The work done under this head consisted in the paving of part of the roadway between sheds Nos. 1 and 2 leading to the shed raised last year, used by the large vessels of the New Ontario Steamship Company, Limited.

The Sicily Asphaltum Company performed the work in a satisfactory manner and completed it within the time specified.

UNDERPINNING WALLS, SIDE BASINS OF BASIN NO. 2.

The walls of these basins are of very old standing and some portions are in a poor state of preservation. Underpinning was done at the worst places, the new foundations being carried down to such a depth as will ensure 15 feet of water at normal level in the canal. The whole of these walls will have to be treated in the same manner in the near future. This work is being done by day's labour and can only be performed while the canal is unwatered in the spring of the year.

CAPITAL.

Rebuilding Slope Walls.

New plans were prepared for this work during the year, providing for the building of part of the walls in concrete.

Messrs. Quinlan & Robertson secured the contract and the work was pushed vigorously as soon as the canal was unwatered, a section 1,400 feet in length being fully completed at the end of the fiscal year. It was found that the concrete portion could be built much more rapidly than the dry stone work and at practically the same

cost. Rapidity being of the utmost importance here, it seems advisable to extend the concrete belt to within a couple of feet below the coping in order to ensure the completion of the work within the time specified.

A couple of short sections on the north side and the whole of the south wall still remain to be done.

DREDGING BASINS, &c.

This work was continued during the year under the immediate supervision of Mr. Wm. O'Brien, superintendent of the dredging fleet. The total quantity of material excavated was about 22,000 cubic yards.

The want of proper dumping ground is a great drawback here and some means will have to be found of disposing of the dredgings, in the near future.

The works enumerated above were under the supervision of Mr. Henry R. Lordly, engineer in charge.

ELECTRIC INSTALLATION.

Work on the installation of electric machinery for the operation of lock gates, &c., was continued during the year. Tenders for the finishing of various parts of such machinery were invited, but no contract was awarded, it being thought advisable, before finally adopting the proposed system, to have it practically tested. A set of machines was therefore procured and installation of them on the gates of Cote St. Paul old lock commenced in June. At the end of the fiscal year the work was in progress. As soon as completed the lock will be opened to traffic in the regular way.

BRIDGE AT ATWATER AVENUE.

This bridge is of the same type as those built at Napoleon street and Cote St. Paul last year, only it is built on the skew, to conform with the alignment of Atwater avenue. Its length is 205 feet and the width between the trusses 32 feet.

The abutments and pivot pier are built of concrete with arches in the mass of the material, to pass the main pipes of the Montreal waterworks. The rest piers consist of a cribwork foundation carried down, as well as other portions of the substructure to 22 feet below water level in the canal and topped with concrete walls, 6 feet in height.

This work was done under contract by Messrs. Rogers & Taylor, and completed on June 30.

The contract for the superstructure had not been awarded at that date.

This bridge will only be opened to traffic after the present season of navigation.

This work was carried out under the supervision of Mr. L. S. Pariseau, engineer in charge.

SOULANGES CANAL.

Length, 14 miles; 5 locks, 270 x 45 feet, 15 feet of water on sills; total rise, 84 feet.

REPAIRS AND RENEWALS.

This being a practically new canal the charges under repair appropriation were only slight so far, and there is little to record under that head. The lock gate stoney sluices, however, required considerable attention during the year. Some parts of them, such as rollers, sliding bars, &c., which were originally of cast and wrought iron, are gradually being replaced by steel, the softer material wearing down too fast.

The moneys voted for repairs here were expended in cleaning ditches, painting lock gates and electric light poles, rebuilding fences, cutting weeds, maintaining roads, bridges, buildings, &c. Some of the slope lining of the banks in the long reach was also relaid, the stone for this work being purchased from Mr. Jas. Quinlan. A considerable length of this lining will still have to be replaced or completed in the near future.

INCOME.

Repairs to Embankment.

Considerable anxiety was again caused last year by the condition of the embankments of regulating basin No. 2. Other portions of them began to slide early after the opening of navigation and the basin was unwatered shortly after, by means of the cofferdam provided the year before and which had only been partly removed.

During the summer a strong clay bank was built at the outside toe of the south embankment and a considerable amount of good clay deposited on the inside of the north embankment. The slopes were afterwards reformed and the top of the banks well rounded.

The south embankment has stood very well since, but the north one is still leaking and slides are again threatening, although the bank is in no immediate danger. Another attempt will be made this summer to effectually secure it.

The banks adjoining Clement's gully also received considerable attention last year.

This gully had been very much obstructed by slides. It was cleaned, the slopes reformed and flat stones deposited both on the bottom and the slopes on a length of 1,200 feet. Some distance above at a point where the fall in the ditch is quite steep, a double row of 24" vitrified clay pipes, 200 feet in length, was laid at the bottom and covered with clay. The extremities of this section consist of heavy blocks of concrete.

ST. AMOUR'S GULLY.

This gully was considerably improved. Besides widening and deepening it, a couple of feet on its whole length, the lower portion of it was lined on the sides with stone brought up to a height of 4 to 5 feet from the bottom.

The sodding on the slopes was somewhat damaged during the spring floods and some repairing will have to be done to it this season.

BISSONNETTE'S GULLY.

The work done here last year arose out of claims from farmers, for damage done to their lands owing to the increased quantity of water brought down to this ditch since the construction of the canal.

The gully was made sufficiently wide and deep to meet the changed conditions and five bridges, one on each of the farms and a culvert under the public road were built, concrete being used.

All the farmers interested in the matter gave the government a full release for past, present and prospective damages and have undertaken to maintain the bridges and gully in future.

CAPITAL.

Bridge at Power House.

The old wooden highway bridge over the tail-race of the power house at Coteau du Lac, was replaced last fall, by a steel structure 80 feet span and 16 feet width of roadway.

The channel at that point is now practically the same width as the rest of the race, and the strong current which formerly had a tendency to undermine the abutments, has been obliterated.

The municipal authorities of the parish have undertaken to maintain this bridge in future and the government is thus relieved of any further responsibility in connection with it.

POWER HOUSE.

The electric regulators provided for the turbines of the power house some years ago, never gave satisfaction and have been discarded. They were replaced last winter by two type D. Woodward regulators, which have since acted quite satisfactorily under severe tests. Their effect on the steadiness of the lighting is quite apparent.

MACHINERY.

Tenders for machine tools for the shops on this canal were invited in June last, but no contracts have been awarded up to July 1 last.

These machines will be purchased and put in operation during the fiscal year 1905-06.

HEATING AND LIGHTING SHOPS, STORES, &C.

The buildings erected during the fiscal year 1903-04 were completely wired for electric lighting.

This work was done very carefully and in accordance with the rules of the Association of Underwriters.

A hot water heating apparatus was also installed and both this and the lighting system thoroughly tested with satisfactory results.

BEAUHARNOIS CANAL.

Length, 11¼ miles; 9 locks 200 x 45 feet; 9 feet of water on sills, total rise 82½ feet.

This canal is only being used by a few market boats and barges. The staff has been reduced to one man at each lock and isolated bridge, and three men in charge of ferries.

REPAIRS AND RENEWALS.

A large quantity of stone was purchased and broken both by machinery and by hand and part of it used on the roads along the canal and the Hungry bay dyke.

Three of the waste weirs were overhauled last spring and a pair of old lock gates remodelled and stored for further use.

The rebuilding of the north wall in the upper entrance was continued last fall. It is now practically completed, but the south wall has not yet been touched. Its condition will necessitate an entire overhauling at short notice.

Owing to the rebuilding of the waste weir walls at the upper entrance, as described below, this canal could only be opened to navigation on July 3, 1905, instead of May 1.

INCOME.

Rebuilding Walls of Waste Weir Race, Valleyfield.

The old rubble wall on the south side of the head and tail race of the supply weir here was taken down and a strong concrete wall substituted. This wall is started on

such of the bottom portions of the old one as could be preserved. Its height is about 10 feet and its average width 4′ 6″ the length being 590 feet.

The ends of the north wall were also rebuilt in cement masonry.

Two highway bridges and the sluice operating bridge were renewed and the iron fence on the south side properly repaired and painted.

The work was done under contract by Messrs. Cossette Freres and satisfactorily completed within the time specified.

The income work both on the Soulanges and Beauharnois canals have been carried out under the supervision of Mr. L. S. Pariseau, engineer in charge.

CHAMBLY CANAL.

Length, 12 miles; 9 locks, 118 x 22½ feet; 6½ feet of water on the sills; total rise, 74 feet.

REPAIRS AND RENEWALS.

The main items of work chargeable to repairs done here during the year, irrespective of the maintaining of the canal and structures in good order were as follows:—

A strong substantial vessel 68′ x 20′ x 5′ was built at the shops during the winter. The dredging machinery and derrick of the present dredging boat will be transferred to the new hull during next winter.

An opening some 40 feet wide was provided at the end of the long pier on the north side of the canal entrance at St. Johns, P.Q. This necessitated some dredging and the placing of booms to protect both the pier and vessels. This passage way will accommodate small boats plying betwen St. Johns and Iberville.

The pivot pier of the bridge at Ste. Therese Island, which consists of a timber platform on piles, had to be considerably repaired last spring, it having been disturbed by frosts. It is the intention to replace the timber structure with concrete shortly.

INCOME.

Macadamized Towpath.

A contract for the supply of the necessary broken stone for this work was awarded to Mr. J. E. Hebert, of St. Johns, and a couple of miles of the road were macadamized during last fall. The stone is provided in two sizes, viz.: 3″ and 2″. The larger size is being placed on the prepared roadbed, the 2″ stone on top of it and the crushings used as blinding material.

REBUILDING DENEAU'S CULVERT.

This work was done by day's labour under the joint supervision of Mr. L. S. Pariseau, engineer in charge, and Mr. P. B. Benoit, the canal superintendent.

The culvert is 132 feet long and consists of two concrete tunnels 3½′ x 3′, the base 12 feet wide being composed of a layer of concrete one foot thick.

The western end or inlet is formed by a well the walls of which are carried up to to a height sufficient for the securing of the clay bank above it.

The outlet consists of concrete walls and the waters coming out of the culvert are carried to a ditch by means of an iron pipe 3′ 3″ in diameter and about 250 feet long, the bottom of which is on a level with the platform of the outlet. This pipe in its turn is covered with clay and broken stone which will permit of any water which cannot find its way through the pipe to reach the ditch.

ROAD WEST SIDE OF CANAL.

This road runs parallel with the canal north of the town of St. Johns. A section one mile in length was macadamized during May and June last.

The stone was supplied under contract by Mr. J. E. Hebert, of St. Johns, and the preparing the road-bed, the spreading of the crushed stone and the compacting of it with a 5-ton roller, were done by day's labour.

As soon as the whole length of the road shall have been covered with this material a much heavier roller will be used to further improve it.

CULVERT AT LITTLE RIVER DES IROQUOIS.

The work was completed during the month of June last.

The culvert is 125 feet long, 10 feet wide and 5 feet high outside. It is formed of two tunnels 3½ x 3′, and its top is 11 feet below the natural level of the water in the canal. The wells at each end are rectangular in shape 14′ x 11′ outside and provided with a division wall in the centre, so that each tunnel can be used separately.

The structure is entirely built of concrete except a few pieces of timber used as a foundation.

As stated in my last report, the work was completed by the department for the contractor, Mr. W. J. Finn, who found it impossible to carry out his contract Operation was resumed at the close of navigation last fall and the whole of the concrete work as well as the reforming of the bank and public road, done before the frost set in. Some puddling at the extremities had to be left undone till ast spring. This was completed in June, 1905.

Both the bank and the public road at that point have been widened, which is considered a great improvement by boatmen and the travelling public. The building of this culvert permanently removes all causes of damage to lands along Little Iroquois river.

PROTECTING WALL AT HEAD OF STE. THERESE ISLAND.

A sum of $2,200 had been appropriated for the repairing and extending of the wall already provided by the government for the protection of the head of this island. Negotiations were opened with the owner of the land with a view to securing a full release for all damage past, present and prospective by handing over to him the sum of $2,000.

This has been carried out and the government is now relieved of all responsibility in the matter.

LANDING WHARF AND SHED AT ST. JOHNS.

This wharf and shed will be used by the Singer Manufacturing Company. They are located on the west side of the canal above the guard lock.

The wharf is 181 feet long and 30 feet wide. It consists of cedar piles capped with pitch pine stringers and cross beams and a 3″ pine floor. The shed, 121′ x 20′ is substantially built and the roof is metal covered.

The work was performed under contract by Mr. Valentin Trahan, and very well done.

The works chargeable to income on this canal were performed under the supervision of Mr. L. S. Pariseau, engineer in charge.

ST. OURS LOCK.

Length of canal, ½ mile; one lock, 200 x 45 feet; 7 feet of water on sills; total rise, 5 feet.

REPAIRS AND RENEWALS.

The various structures in connection with the lock were kept in good order during the year.

There is nothing to report here under the head of repairs, except the building of a masonry oil and paint store 16′ x 12′, and the protecting of the lower end of the island on the side of the main channel by the placing on it of 250 cubic yards of field stone.

INCOME.

Lock Gates and Stop Logs.

Two pairs of new gates were built here during the winter. They were placed under cover and will be kept as spares to be used in case of accident.

Twenty stop logs purchased last year were dressed and otherwise prepared for use in an emergency.

LANDING WHARF.

The old landing wharf above the lock, which consisted of a wooden platform resting on top of wooden posts, was removed during the year and a new structure erected. The position of the latter gives the entrance an additional width of 10 feet and will make the approach to the lock easier.

The new wharf is formed of eight concrete piers resting on piles and placed about 20 feet apart. The spaces between the piers will be spanned by steel beams carrying a plank walk, a continuous iron railing running the whole length of the landing.

Both the beams and railing are built and secured to the piers in such a way as to be removed in the fall and stored out of reach of floating ice in the spring.

Upper entrance.—The lower part of this entrance had never been made of the required depth except in the channel in line with the lock. Considerable dredging was done here in the spring and vessels can now meet in the entrance with ease.

The works chargeable to income on this canal were performed under the supervision of Mr. L. S. Pariseau, engineer in charge.

STE. ANNE'S LOCK.

Length, $\frac{1}{8}$ mile; one lock 200 x 45 feet; 9 feet of water on sills; total rise, 3 feet.

Old lock still available; 200 x 45 feet; 6 feet of water on sills; total rise, 3 feet.

The various structures on this lock and its approaches were kept in good repair during the year.

The main items of work were as follows:—

Rebuilding a section of the wing dam above the lock about 160 feet in length; rebuilding a pair of old lock gates, which will be stored for use in case of accident, renewing the platform of the upper gates of the new lock.

CARILLON AND GRENVILLE CANALS.

Carillon Canal.—Length, $\frac{3}{4}$ mile; two locks, 200 x 45 feet; 9 feet of water on sills; total rise, 16 feet.

Grenville Canal.—Length, $5\frac{3}{4}$ miles; five locks, 200 x 45 feet; 9 feet of water on sills; total rise, $43\frac{3}{4}$ feet.

On February 6 last, Mr. E. H. McCoy, was appointed overseer of these canals to replace Mr. F. M. H. Cushing, who had acted as overseer since the death of Mr. Jas. B. Cushing on October 22, 1903.

Both these canals are under one overseer. They are separated by a sketch of navigable river about five miles long, and between them is to be found the Old Chutes-a-Blondeau lock, which was abandoned at the completion of the dam at the head of the new Carillon canal in 1883, the rise of the old lock having been practically obliterated.

REPAIRS AND RENEWALS.

Irrespective of the ordinary maintenance of the various structures on these canals, the following works were performed during the fiscal year.

The western end of the guide pier and two detached piers at the head of the Carillon canal were rebuilt from low water line.

A carpenter shop about 125′ x 40′ was erected at Carillon.

Protecting beams (the invention of Mr. E. A. Manny) to secure lock gates against being thrown down by collision with vessels, were placed on various locks in these canals. A dry stone masonry wall about 250 feet in length was built on the south side of the upper approach to lock No. 6, Grenville canal.

Two dangerous leaks in the south bank of the Grenville canal, one above lock No. 5, the other at lock No. 6, were successfully stopped by means of a deep trench cut longitudinally into the bank down to about one foot below the prism and filled with good rammed puddle.

The tow path above lock No. 6, was widened on a considerable distance.

INCOME.

Guide Pier at Upper Entrance to Carillon Canal.

This work was completed by the contractors, Messrs. O. Martineau Fils & Lemoine, during the last fiscal year. The final estimate was handed you in August, 1904. The concrete work done here has successfully borne the test of two very severe winters.

SWING BRIDGE AT STONEFIELD.

The old wooden swing bridge across the Grenville canal, at Stonefield, was replaced last year by a steel structure, built and erected by the Phœnix Bridge & Iron Works of Montreal.

The remodelling of the pivot pier and abutments had been done by day labour under the supervision of Mr. Francis J. Lynch, engineer in charge.

The bridge works easily, and is giving satisfaction.

GRENVILLE WHARF.

A contract for this work was awarded to Messrs. O. Martineau & Fils in August, 1904.

The work consists of the removing of the present timber work down to low water and the rebuilding of the wharf with concrete.

The contractors commenced work in September. For the accommodation of the Ottawa River Navigation Company's boats, landings were first provided on the south-west side of the wharf, the freight shed moved to a convenient position and a cattle pen erected in the vicinity. The tearing down of the old work was then proceeded with so far as the water permitted, and a cement shed erected.

It was then hoped that some concrete work could be done before winter set in, but the water kept at too high a level all through October to permit getting in the foundations. In the meantime, stone was being received and crushed by a steam crusher for concrete.

Stone crushing was resumed in May, 1905, and continued to the end of June, when a sufficient quantity was on hand.

In March last two clusters of piles, 40 to 45 feet long, were driven on the northerly side of the steamboat basin north of the wharf. Although the holding ground was not found as good as expected, the piles have satisfactorily sustained some severe tests last spring.

At the opening of navigation considerable trouble was caused by steamboats setting fire to the dry and rotten timber in the wharf. However, no serious damage was done.

Fishway in Carillon Dam.—In August, 1904, a survey was made of the Carillon dam, for the purpose of putting a fishway in the structure, but the idea seems to have been abandoned. There is no doubt but such a continuance would improve the fishing above the dam, it being practically impossible for fish to go past this obstacle.

Carillon Slide.—In this connection, I beg to report that a recent examination of the timber slide on the Point Fortune side has shown the structure to be rapidly decaying. I may remark that this slide has not been used once in the last two years and that owing to the disappearance of large timber in the Upper Ottawa valley, its usefulness seems to have ceased.

Should the Department of Public Works see fit to close it permanently, the Department of Railways and Canals will have to continue the superstructure of the dam across the opening and it will then be proper time to place a fish ladder in it. I shall report more fully on this matter shortly.

The works chargeable to income on this canal were carried out under the joint supervision of Mr. Francis J. Lynch and the canal overseer.

I have the honour to be, sir,

Your obedient servant,

ERNEST MARCEAU,

Supt. Engineer, Quebec Canals.

QUEBEC CANALS.

STATEMENT of the Opening and Closing of Navigation.

Name of Canals.	Closing.	Opening.
Lachine Canal	1st December, 1904	1st May, 1905
Soulanges Canal	2nd " 1904	1st " 1905
Beauharnois Canal	30th November, 1904	3rd July, 1905
Chambly Canal	30th " 1904	1st May 1905
St. Ours Lock	30th " 1904	15th April, 1905
Ste. Anne Lock	30th " 1904	16th April, 1905
Carillon and Grenville Canals	30th " 1904	1st May, 1905

LACHINE CANAL.

STATEMENT showing the depth of the river water on the mitre sills of new Lock No. 1, at lower entrance and new Lock No. 5, at upper entrance, during the fiscal year ending June 30, 1905.

Months.	New Lock No. 1, Lower Sill.				New Lock No. 5, Upper Sill.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	19	8	17	8	18	4	17	2
August	17	9	16	11	17	2	16	6
September	19	3	17	1	16	11	16	1
October	20	7	19	2	17	3	16	5
November	19	7	17	7	16	10	15	8
December	32	2	15	4	16	10	14	8
1905.								
January	29	7	25	4	15	8	14	5
February	26	9	24	0	15	5	14	2
March	29	4	25	4	17	4	13	8
April	34	2	16	2	17	11	16	4
May	19	9	16	5	17	10	16	4
June	18	3	17	3	17	3	16	10

Mitre sill of old Lock No. 1, 2′ 2″ above sill of new Lock No. 1.
Mitre sill on old Lock No. 5, 5′ 0″ above sill of new lock No. 5.

BEAUHARNOIS CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 6, at lower entrance, and Lock No. 4, at upper entrance, during the fiscal year ending June 30, 1905.

Months.	Lock No. 6, Lower Sill.				Lock No. 14, Upper Sill.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	12	6	11	8	12	4	12	0
August	11	6	10	10	12	2	11	10
September	10	10	10	8	12	0	11	1
October	10	10	10	4	12	0	11	4
November	10	6	10	2	11	8	11	0
December	13	6	10	2	11	5	10	11
1905.								
January	18	0	13	0	11	10	10	11
February	24	7	16	0	11	10	10	9
March	19	6	14	11	12	0	10	6
April	15	0	10	10	12	0	11	2
May	12	0	11	0	11	7	11	4
June	12	0	11	4	11	10	11	4

CHAMBLY CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 9, at lower entrance, and Lock No. 1, at upper entrance, during the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 9, LOWER SILL.				LOCK NO. 1, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	11	1	9	6	8	11	8	2
August	9	8	8	9	8	6	7	3
September	11	9	8	9	8	3	7	5
October	12	10	9	6	9	11	8	0
November	11	0	9	8	8	10	8	0
December	9	10	8	6	8	1	7	9
1905.								
January	9	2	8	3	8	3	7	9
February	8	11	8	2	8	2	7	10
March	20	2	8	8	10	6	7	10
April	19	8	14	1	11	5	10	6
May	14	5	12	0	11	3	9	4
June	12	0	11	5	9	9	9	1

ST. OURS LOCK.

STATEMENT showing the depth of the river water on the mitre sills of St. Ours lock during the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 1, LOWER SILL.				LOCK NO. 1, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	11	5	9	2	10	0	8	10
August	9	3	8	5	9	3	8	3
September	10	2	8	2	10	2	8	4
October	11	2	9	2	11	2	8	4
November	10	2	8	1	9	7	8	8
December	9	11	8	2	9	3	8	0
1905.								
January	11	8	8	10	8	4	7	9
February	10	11	10	1	8	2	8	0
March	19	7	9	10	15	6	7	11
April	20	2	11	5	15	11	11	6
May	13	5	11	2	11	11	10	4
June	11	4	10	1	10	4	9	10

STE. ANNE LOCK.

STATEMENT showing the depth of the river water on the mitre sills of Ste. Anne lock, during the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 1. LOWER SILL.				LOCK NO. 1. UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	13	3	12	2	14	6	12	4
August	12	2	11	5	12	3	11	2
September	11	10	11	1	11	8	10	10
October	12	0	11	5	12	10	11	9
November	11	9	10	8	12	9	11	7
December	12	2	10	5	11	5	10	10
1905.								
January	11	4	10	6	11	10	11	0
February	11	5	10	8	12	10	11	7
March	12	5	10	1	13	4	11	3
April	13	4	11	4	14	7	12	4
May	13	1	11	4	15	4	12	6
June	12	4	11	9	14	4	12	7

CARILLON CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock Nos. 1 and 2, during the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 1. LOWER SILL.				LOCK NO. 2. UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	16	0	13	6	16	5	13	6
August	13	6	12	4	13	5	12	1
September	12	9	12	0	12	9	11	6
October	14	3	12	10	14	4	12	11
November	13	5	12	9	14	1	12	1
December	12	10	12	5	15	10	12	1
1905.								
January	13	7	12	8	14	11	12	4
February	14	4	13	6	13	3	12	4
March	15	4	12	9	13	2	10	8
April	17	1	13	9	15	9	13	6
May	16	11	13	11	17	6	14	1
June	16	0	13	11	16	1	13	11

GRENVILLE CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock Nos. 3 and 7, Grenville canal, for the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 3. LOWER SILL.				LOCK NO. 7. UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	20	0	16	2	17	2	13	6
August	16	2	14	6	13	7	11	10
September	15	7	14	4	12	3	11	5
October	17	4	15	9	15	0	12	6
November	17	2	14	11	14	8	12	3
December	20	3	15	0	12	3	11	3
1905.								
January	24	10	17	0	11	3	10	2
February	27	6	23	8	10	2	9	10
March	27	10	19	6	13	11	9	5
April	24	6	16	7	16	5	14	0
May	21	5	17	2	18	6	14	6
June	19	10	16	9	17	2	14	3

SOULANGES CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 1, lower entrance, and Lock No. 6, at upper entrance, during the fiscal year ending June 30, 1905.

MONTHS.	LOCK NO. 1. LOWER SILL.				LOCK NO. 6. UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	19	9	18	8	17	7	17	7
August	18	8	18	3	17	7	17	3
September	18	5	18	0	17	5	17	1
October	18	7	18	3	17	5	17	0
November	18	6	17	4	17	2	16	7
December	19	0	17	3	16	8	16	5
1905.								
January	21	3	17	8	17	0	16	6
February	24	9	20	7	17	0	16	6
March	24	3	21	8	17	2	16	2
April	22	7	17	8	17	8	16	9
May	19	3	17	8	17	0	16	9
June	18	9	18	6	17	4	16	8

SESSIONAL PAPER No. 20

LACHINE CANAL.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1905.

Date.	Name of Vessels.	Name of Owners.	Fines.	Damages.	Remarks.
1904.			$ cts.	$ cts.	
May 2.	Barge *Santa Anna*.	Capt. D. Salvail		23 08	Damages to lower gate of Lock No. 1.
Nov. 7.	Barge *Thrush*.	The Canada Atlantic Ry. Co.		95 86	Damages to spuds of Derrick No. 2, not yet paid.
		Total		118 94	

SOULANGES CANAL.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1905.

Date.	Name of Vessels.	Name of Owners.	Fines.	Damages.	Remarks.
1904.			$ cts.	$ cts.	
July 2.	Str. *Turret Chief*.	Montreal and Lake Superior Line.		20 00	Damages to coping, Guard Gate, Lock No. 5.
Aug. 16.	Str. *Turret Court*.	"		40 00	" "
Aug. 19.	Barge *Armond*.	H. Lomer	20 00	20 00	Disobedience.
Sept. 16.	Barge *Hilda*.	Quebec Route		20 00	Damages to coping stone, Lock No. 2.
Sept. 29.	Str. *Geo. C. Howe*.	"		25 00	Damages to coping stone, Lock No. 1.
Oct. 7.	Str. *Dalton*	"		25 00	Damages to coping stone, Lock No. 2.
		Total	20 00	130 00	

CARILLON AND GRENVILLE CANALS.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1905.

Date.	Name of Vessels.	Name of Owners.	Fines.	Damages.	Remarks.
1904.			$ cts.	$ cts.	
Oct. 6.	Barge *G. H. Laboire*			10 55	Damages to lower gates, Lock No. 1, Carillon Canal.
		Total		10 55	

ST. LAWRENCE DISTRICT.

Inclosure.

SUPERINTENDING ENGINEER'S OFFICE.
CORNWALL, September 8, 1905.

SIR,—I beg to inclose herewith my annual report on works of construction, St. Lawrence District, for the fiscal year ending June 30, 1905.

I have the honour to be, sir,

Your obedient servant,

L. N. RHEAUME,
Engineer in Charge.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

ST. LAWRENCE DISTRICT.

SUPERINTENDING ENGINEER'S OFFICE,
CORNWALL, July 1, 1905.

SIR,—I beg to submit my annual report upon works of construction and survey, in connection with the enlargement of the St. Lawrence canals, for the year ending June 30, 1905.

CORNWALL CANAL.

The works of construction performed during the past year on this canal consisted in widening and enlarging the regulation weir at old lock No. 17, and in forming a twelve (12) foot channel between the east end of the revetment wall and the upper entrance of old lock No. 17.

Regulating weir at old lock No. 17.—For this work a contract was entered into with Mr. J. J. Fallon on November 10, 1904. It consisted in removing part of the old masonry walls, enlarging the old sluice-ways, forming two additional sluice-ways, building a new service bridge, renewing part of the old foundations, renewing the sheeting of the north wall of the race-way, erecting new fences and pointing part of the old walls.

The contract was completed on June 29 last, and the final estimate was sent in on July 4 last.

Widening and deepening channel between east end of revetment wall and old lock No. 17.—For this work a contract was entered into with the W. J. Poupore Co., Limited, on November 7, 1904. It consisted in dredging out a twelve (12) foot channel, which was completed on June 16 last, and a final estimate was returned on the 30th of the same month.

RAPIDE PLAT CANAL.

Upper entrance.—The contract for this work was awarded to Mr. P. H. Gilbert, and was commenced April 17, 1901.

The work done during the fiscal year is as follows:—

Dredging operations were completed on July 6, 1904.

The masonry of the stone superstructure of south pier was resumed on June 30, 1904, and had to be discontinued on July 18, owing to the prevailing high water. It was resumed again on October 27 and completed on November 30, 1904. The placing of a pine stringer on top of the cribwork for the pier, placing broken stone at foot of masonry wall, filling and levelling in rear of the masonry superstructure then followed, and the contract was entirely completed on January 14, 1905.

The final estimate for this work was sent in on March 31, 1905. Copies of plans, diagrams and calculations are being prepared.

GALOPS CANAL.

IROQUOIS SECTION.

The contract for this work was awarded to Messrs. Larkin & Sangster, and was commenced on May 20, 1897, and was completed in November, 1902.

The last progress estimate represents as nearly as possible the full extent of work done, and was sent in on March 31, 1905.

The final plans, diagrams and detail calculations are now being prepared.

GALOPS DIVISION.

Dredging prism of old canal from old lock 26, Cardinal, to the eastern end of the 'upper entrance.'

This work was awarded in the beginning of November, 1896, and a contract was entered into with Messrs. Wm. Davis & Sons, on December 14, 1896.

Dredging operations commenced on November 8, 1896, and were discontinued on the 26th day of the same month.

It having been contemplated to proceed with the enlargement of canals, this work was consequently abandoned.

A final estimate for the amount of work done was returned on March 31, 1905.

CARDINAL SECTION.

For this work a contract was entered into with Messrs. Wm. Davis & Sons on May 10, 1897.

During the past year the work performed is as follows:—

The repairs to the pitched stone facing on slopes of the 'deep cut' rendered necessary by the washing away in places of the underlying earth slopes and which was in progress on July 1, 1904, was completed on August 4, 1904.

The rejointing, where required, of joints in the masonry of the revetment walls throughout the 'deep cut' was completed on August 25, 1904, thus completing the entire work on this contract.

A final estimate was prepared, and with the exception of a balance of a few hundred dollars, was returned on May 31, 1905.

Final plans, diagrams and calculations for this work are in progress.

UPPER ENTRANCE.

This contract was awarded to Messrs. Murray & Cleveland on November 14, 1888. The work of construction proceeded with during the past year is as follows:—

Earth excavation.—Dredging operations for widening the prism at McLaughlin's Hill, west of the Nine Mile road, were carried on at intervals during the season from July 1, 1904. The excavation is nearly completed, a small area requiring to be cleaned up. West of the Nine Mile road the excavation turned out to be very hard and had to be drilled and blasted, the material to be excavated will be used in forming the earth talus at the 'gut dam.' The grading of a berme and the forming of slopes were completed in September, 1904.

Rock excavation.—Excavation in widening the prism at the site of the old guard lock was carried on at intervals during the past season and the widening at this point was completed.

Sodding.—The sodding of slopes was carried on during the months of September and October, 1904.

Protection to slopes.—The stone protection to inside slopes was continued at intervals during the past season and that around the east side of McLaughlin's Hill at Ward's bay and a short piece at McLaughlin's creek were completed. The slopes below the guard lock, at the end of the cribwork on the north side connecting with Messrs. Wm. Davis & Sons' contract, was also protected with stone.

Masonry.—Owing to the prevailing high water during the past season, very little progress was made with this class of work. In December, 1904, when water was sufficiently low, 550 lineal feet of the first course above the footing of masonry was laid over the extension of the cribwork below the lift lock and the footing course was also laid on both sides of the cribwork.

Concrete walks.—During the month of November, 1904, the excavation for concrete walks in rear of the guard and lift locks walls was completed, and broken stone was placed in readiness to receive the concrete.

It is expected that this contract will be completed this season.

NORTH CHANNEL.

The contract for this work was awarded to Mr. M. A. Cleveland and was commenced on May 14, 1897.

The work of construction performed during the past year is as follows:—

Earth excavation.—The dredge *Stewart* was employed at intervals in excavating crib seats for the 'gut dam' and for crib seats at lower end of stone protection to channel and in prism at head of Spencer's island, when not employed at upper entrance of Galops canal, was laid up for the winter season on December 9, 1904. During the winter season new and more powerful engines were installed in the dredge, thereby increasing materially her capacity for excavation. She resumed operations on May 4, 1905, digging crib seats at head of Spencer's island and working on outer shoal south side of channel above Drummond's island to June 30, 1905.

Superstructure of cribwork.—Owing to the prevailing high water, this work was only proceeded with during months of October and November, 1904. When stage of water permitted, the work of placing footing course to masonry superstructure on top of cribwork, above Spencer's island was continued up to December 9, 1904. It was

resumed on June 8, 1905, and completed to the west end at lighthouse crib, on June 15, 1905. East of the angle the work of placing the first course of masonry was resumed and continued up to June 30, 1905, when some 1,700 lineal feet of this work was completed.

Protection wall.—The work of replacing curb stone, and paving in front of same was carried on at intervals, when stage of water permitted, during the season of 1904, and completed on June 30, 1905.

Cribwork.—In August, 1904, a group of three cribs on either side of the channel at the lower end of stone protection to slopes, were sunk in place and ballasted. From September to November, 1904, carpenters were employed at intervals in building cribs to be placed at the head of Spencer's island for protection to the bank. Thirty-two cribs 30′ x 20′ were built up 10 courses high and moored in the bay above the ship yard.

It is expected that this work will nearly all be completed by the end of the present fiscal year.

'GUT DAM.'

As originally designed the crest of the dam was to be built only to the height of the level of ordinary water, viz.:—

Nine feet of the sill of old lock No. 27, but, with the consent of the United States authorities, a change was made so that the crest of the dam be raised (2½) two and one-half feet above ordinary water. This change was rendered necessary in order to make the currents on the Galops rapid constant at the different stages of the water, thereby placing vessels using that channel at a better advantage.

During the past year the work of construction is as follows:—

Excavation.—The dredging of seats for cribs was resumed on July 16 and completed on July 19, 1904.

Four anchor cribs were also dredged out.

Cribwork.—The placing of cribs for the core of the dam was resumed on August 6, and completed on August 11, 1904, thirty-seven cribs in all having been placed to date and ballasted to required level on August 16, 1904.

Talus.—The placing of the rock talus at both ends of the dam was completed on August 22, 1904. The top of the rock dump forming part of the rock talus on the lower side of the dam was taken down to the level of the finished top of the talus, the material obtained being placed between the dump and the cribwork.

Superstructure.—The temporary courses on top of the cribs were removed and a permanent superstructure of British Columbia pine was placed and completed on June 20, 1905.

The indurated clay talus has been nearly completed. The effect of the dam materially improved the direction of the current through the Galops rapids, such as was previously contemplated.

The remaining part of the work to be done on the dam will be completed before the close of the season.

GALOPS RAPID IMPROVEMENT.

This work has been under contract with the Gilbert Bros., Engineering Company, Limited, since September 15, 1897.

During the past season the work performed is as follows:—

Island shoal dredging.—The work of lowering the grade on Island shoal, within the 200 feet channel, was continued until November 15, 1904, when the dredge had to be placed under repairs. Up to this date, 87 per cent of the area of this shoal had been dredged.

This work was resumed on May 8, 1905, and discontinued on June 8, when the dredge was moved to the vicinity of the obstruction discovered in the nine-foot channel, now in use by boats through the rapids.

On June 30 there only remained 4 per cent of the area of this shoal to be dredged, and the 'bank' accumulated ahead of the dredge to be removed.

Though the total area of this shoal was but 101,600 square feet, the dredge covered a total area of 58,700 square feet, making in all an area of 201,500 square feet, covered by the dredge during the operations on this shoal. This was due, in part, to its being necessary to allow the bank ahead of the dredge to extend northward in order to protect the drill boat working in the pitch on lower bar.

Obstruction in 9-foot channel.—The dredge was taken from Island shoal on June 8, 1905, to sweep the 9-foot channel in the vicinity of an obstruction or shoal where boats drawing 8 feet of water had reported striking when the gauge showed 10 feet in this channel.

The shoal was systematically swept to a point well eastward of where boats reported striking and from south to north until such shallow water was found that it was impracticable to work the dredge any longer. The sweeping revealed a ledge of rock in situ over which there is, in places, only 9 feet of water.

Several attempts to place a buoy proved unsuccessful. The velocity of the current at this point is 10½ miles per hour.

Ranges were erected on the canal bank for the guidance of vessels.

Lower bar.—Drilling and blasting operations, north of existing channel through lower bar, which were commenced on June 11, 1904, were continued throughout the season, the work closing down for the season on December 3, 1904. This work was resumed on June 1, 1905, and completed on June 29, 1905.

It was first contemplated that this part of the channel be widened to the extent of 300 feet in width, but, owing to the amount of money available, we are now restricted to a width of 248 feet. Consequently on November 22, 1904, all the work 148 feet north of the centre line was abandoned.

Some soundings taken below the drilled area on lower bar extension, show that no deposit has accumulated.

The area containing the high places on 'Kennedy Rock,' which was drilled and blasted in November, 1901, was swept by the dredge on June 28 and 29, 1905, and the required depth of water found.

A high area on north shoal, between the 9 and 14 foot channels, was removed on June 29 and 30, 1905.

RIVER REACHES.

The contemplated improvement of the river channel west of the upper entrance of the Cornwal canal was accomplished during the past season.

A contract was entered into with the W. J. Poupore Co., Limited, in October, 1904, and signed on November 26, 1904, for the removal of five shoals, above lock 21 of the Cornwall canal, viz.:—

Wagner's island shoal.
Dawson's point.
Archibald's point.
Markell's point.
Maxwell's point.

The dredging operations for this work were commenced on October 18, 1904, and closed down for the winter season on December 10, 1904, resumed on April 17, 1905, and completed on June 15, 1905.

The removal of these shoals to a depth of 17½ feet of water, has materially improved the channel. It has changed the direction of the current, instead of flowing in the direction of the Long Sault, it has taken a direct course towards the entrance of the canal, which is a great benefit to navigation.

On Maxwell's shoal where a very strong current existed, a more uniform and moderate current has been obtained.

The material improvement having been realized, it was decided to do away with the removal of the whole of Wagner's island shoal, which turned out to be solid rock, the projecting point of it 56 feet in width only, was removed, thereby saving an extra outlay of about $15,000.

There is now a clear width of channel of over 400 feet outside of this shoal for vessels to navigate through.

Immediately after the completion of this work, buoys marking the new channel were placed by the Department of Marine and Fisheries, and the new channel was at once brought into use.

The final estimate for this work was returned on June 30, 1905, and plans, diagrams and calculations are nearing completion.

I have the honour to be, sir,

Your obedient servant,

L. N. RHEAUME.

Engineer in Charge.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

ST. LAWRENCE CANALS.

Office of the Superintendent of Operation.
Cornwall, Ont., June 30, 1905.

Sir,—I have the honour to submit herewith the annual report on the operation and maintenance of the St. Lawrence canals for the year ending June 30, 1905.

THE CORNWALL CANAL.

The Cornwall canal was closed to navigation on December 10, 1904, and opened again on May 1, 1905; and was operated during the season without serious accident, and without interruption.

The heavy slide in the high north bank, west of lock 21, was filled up, and the back ditch deepened so as to reach into the stratum of a hard-pan found there. This deepening of the ditch has made it able to carry off all the surface water so successfully that there was no slide of the high bank, as there has been every year previously since it was built.

Ditches were also completed across canal lands just south Mille Roches bridge, and along the south side, west of the guard gates, a distance of over 2,000 feet, in all.

The towpath from lock 20 to the Cornwall bridge was repaired. It is a difficult matter to keep this part of the south bank in anything like good shape as it is used

for a public road by the whole community. Unless the practise can be stopped it will be advisable to make a towpath fit for carrying heavy loads in wagons.

The usual repairs were made to the rip-rap all the way along the canal; and a very fine piece of work, with a heavier face stone than has been customary, was put in along the south bank from Cornwall bridge to weir at lock 17, a distance of about 1,900 feet. The trench for the toe was excavated, and the stone laid, up to the water level, during the time that the water was out of the canal in the spring. Afterwards the remaining height was brought up, for nearly the full distance. It will be finished in the course of a couple of weeks.

The floor of the bridge across the weir at Mille Roches was relaid, using 2-inch pine plank for a bottom course, topped with 2-inch oak planking laid crossways.

Many of the telephone poles had become so rotten that repairs were greatly needed. This work was started by renewing the pole line from the Cornwall bridge to half way between locks 15 and 17, where a cable was run across to the canal office. Work on this renewing of the pole line is continuing.

Owners of side wheel steamers have been complaining for a long time that the walls of the locks are not high enough to prevent their vessels from riding over the masonry and damaging their paddles. To seek a remedy for this condition of affairs, at a small cost, trial 'buffer' posts were put in at the upper end of locks 15 and 18. Those at lock 18 worked admirably, and similar posts will be placed all along, where required by the lowness of the lock walls.

In order to get a driveway to the new workshops a pontoon was built of old gate timber, and it serves the purpose very well, when laid across old lock 17.

Electrically-driven winches for hauling vessels through the locks were installed during the year, and as they required a covering, the watch houses at the different locks were made suitable for this purpose, without destroying their usefulness as a shelter for the lockmen; and moved to the proper position. The winter gave time for the building of only three, so that one remains to be built yet.

During the winter there was also built a house-boat for the use of the repair staff. They are now comfortably housed.

All the usual painting and cleaning was done along the whole line of canal.

Contracts were entered into during the year as follows:—No. 15,408, with Mr. M. P. Davis, to instal electrically-driven winches for hauling vessels through the locks. Somewhat extensive experiments were made, under Mr. Davis, before any particular design was adopted and what was considered best, used. But the main object of their use is the greater safety of canal structures, they necessarily make a lockage slower in time than when a vessel enters and leaves the lock under her own power. This delay has caused considerable complaint on the part of the vessel owners and masters. As the lockmen and vesselmen are becoming more familiar with its working they are more reconciled to its use and are making better use of it, and so the purpose intended is better served.

The canal is now equipped on all its locks, bridges and weirs, except the Mille Roches weir, with electrically-driven operating machinery.

No. 15,675, with Messrs. Driscoll & Fitzpatrick, for the erection of an office building. The work was energetically pushed to completion, and the building has been occupied since the first of March of this year.

No. 15,591, with Mr. J. C. Johnstone, for the erection of a workshop.

No. 15,607, with Smart-Turner Machine Co., for a travelling crane.

No. 15,800, with the Railway Spring and Supply Co., for the necessary machinery to equip the shops. These contracts have all been completed, and the canal staff are not at work setting up the machines.

It is intended that the shop work for all the canals of this district shall be done here, and that with an increase of only one man to the staff, so that a considerable saving in cost of work should result.

No. 15,600, with Messrs, W. H. C. Mussen & Co., for a stone crushing and handling and concrete mixing and handling plant, erected on a scow supplied by the department. This contract has also been completed and the department is in possession of one of the most complete plants in Canada. Its use will enable the repair staff to put in concrete work for about one-quarter of the former cost for labour.

THE WILLIAMSBURG CANALS.

These were closed December 10, 1904, and reopened May 1, 1905.

They were operated during the season without interruption to navigation.

The banks were kept trim and neat by having the weeds and grass cut.

Extensive painting to all the lock and bridge structures and dwelling houses was carried on at Cardinal, Iroquois and Farran's Point.

One dwelling house at Cardinal and three at Iroquois were repaired, and are now occupied by lockmen, who no longer receive the house-rent allowance. All these were old houses, so that repairing them entailed considerable work.

There now remains to be repaired only one house, at Cardinal, of the lot that came into possession of the government in connection with the work of enlargement of the Galops canal.

A lumber shed was built at the canal yard at Morrisburg, and the walls of a cement oil-house. When these are finished it will complete all the buildings required for the Williamsburg canals.

The wire fence along the canal side of the north bank of the Galops canal was completed.

The approaches to the swing bridge at Cardinal were repaired by filling in between the rails with oak plank, and outside of them with gravel, and a flooring was put on the bridge across the back ditch near the Iroquois wharf.

The leak in the south bank of the Galops canal, just west of the lock wing at Iroquois, developed into rather considerable proportions this spring and a length of about 20 feet of the bank had to be dug out for its full width and re-made. The work appears yet as if it would prove a satisfactory job.

Another very serious leak appeared in this same bank and only a very few feet east of the one just referred to. It developed, however, that this was from the town water-service pipe. When the pipe was uncovered it showed improper caulking. Work at this point is still in progress; but it is feared that similar faulty work may exist at other points on this pipe line, and as it comes under the lock it may be a very serious matter.

With the object of providing the water-power supply formerly given the municipality of Iroquois, a flume leading to their power-house was built, as part of the construction of the canal, at the north side of the weir. In January of this year the soft bottom of this flume gave way and the water found its way out under the north retaining wall and around the side of the power-house into the tail-race. The water was shut off and a concrete bottom put in the flume.

At the lower end of the Galops canal the back ditches are necessarily rather deep and the earth sides had to be retained and protected by stone work. These stone walls have been too light and too steep, and have fallen away for a distance of several hundred feet. The worst spot, for a distance of about 160 feet, was replaced by a heavier wall of larger stone laid with a greater batter, and finished on top with a railing of gas pipe.

Considerable trimming was done to a portion of the south bank of the old canal at the village of Cardinal, and a large number of trees planted.

The following contracts were entered into during the year:—

No. 15,709, with Mr. John O'Leary, to repair the leak in the south bank of the Galops canal at the junction of the Iroquois and Cardinal sections. Work was not begun until this season, but is now progressing at a satisfactory rate.

No. 15,768, with the John Inglis Engine Co., for a steel gate lifter. Considerable delay was caused by their inability to obtain delivery of the steel plate in time. It was expected that the work would be completed by May 1; but it will be the middle of August before the gate lifter will be ready.

No. 15,536, with the Acetylene Construction Co., for lighting the Farran's Point canal by acetylene was completed and the plant is working satisfactorily. It is of the non-automatic generating system, consisting of a generator with a capacity of 200 pounds per hour, whence the gas passes through a water scrubber filter and fire-screen into the storage tank: from there through a fire-screen, filter, dryer and metre into the mains.

The old disused lockman's house was converted into a gas house, by taking off the roof and raising the sides to a sufficient height to contain the gas holder of 2,000 cubic feet capacity. This holder is 16 feet diameter by 10 feet in height and is held within a water tank built of concrete, having a water seal of three inches on the side and one foot on top. A pipe line extends full length of the canal and along each side of the locks to the points of all the piers. It is of lapwelded iron pipe, with lead pipe for all the sub-aqueous work. Drip pots and expansion joints are situated at suitable distances throughout its length.

Iron lamp posts are placed at about 160 feet apart and have 2 ¾-foot burners in each, with lamp bases, globes and canopies of a special design.

The light is well distributed at a proper height; and altogether the plant is considered by experts to be a model one. The contractors deserve special credit for the intelligent and painstaking manner in which they did their work.

THE MURRAY CANAL

This was closed December 8, 1904, and opened to navigation on April 18, 1905.

During the season navigation was uninterrupted.

The banks were cleaned of weeds, all slides filled and the ditches cleaned several times. A better grade was given the ditches, and cross drains of tile leading into the canal were put in at more frequent intervals.

The wooden parts of the bridge piers have now all been rebuilt. This year one end of the railway bridge, and both ends of the Smithfield bridge were finished. They should now be good for several years, as this is the first work that has been done on them since they were originally built.

The dry wing walls at the ends of the abutments on the south side of the Trenton and Brighton bridges was taken up and relaid.

One pier at the north-east end of the canal was rebuilt from about two feet below low water mark, with concrete.

The fencing of the canal which was done by contract, was completed, and is a piece of work very creditable to the contractor.

Appended are statements of fines and damages and water levels.

I have the honour to be, sir,

Your obedient servant,

W. A. STEWART,

Superintendent of Operation.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

SESSIONAL PAPER No. 20

STATEMENT of Fines and Damages in connection with the St. Lawrence Canals during the year ended June 30, 1905.

CORNWALL CANAL.

Lock.	Date.	Name of Vessel.	Damage.	Fine.	Name of Owner.	Remarks.
	1904.		$ cts.	$ cts.		
15	July 15...	Kate.....	26 65	.....	G. Lomer Co.....	Paid.
19	Aug. 15...	Ostergotland....	15 00	.....	Gt. Lakes and St. Lawrence..	"
21	" 18...	Corsican.....	25 00	.....	R. & O. Co.....	"
21	" 29...	John Sharples...	5 00	20 00	Gt. Lakes and St. Lawrence..	"
	1905.					
20	May 9...	Advance.....	.....	10 00	Montreal Transportation Co..	"
19	" 10...	A. D. Davidson..	.....	10 00	Gt. Lakes and St. Lawrence..	"

WILLIAMSBURG CANALS.

Lock.	Date.	Name of Vessel.	Damage.	Fine.	Name of Owner.	Remarks.
	1904.		$ cts.	$ cts.		
24	July 2...	S. N. Parent.....	175 00	.....	Gt. Lakes and St. Lawrence..	Paid.
27	Aug. 12...	Imperial.....	70 00	.....	S. Oil Co.....	"
	" 16...	Avon.....	250 00	30 00	Ogd. Coal and Tow.....	"
28	" 25...	Menominee.....	10 00	.....	" "	"
27	" 25...	Cuba.....	20 00	.....	Merchants Line.....	"
28	" 29...	J. Sharples.....	130 00	.....	St. Lawrence and Gt. Lakes..	"
28	Sept. 6...	Cardinal.....	10 00	.....	Ed'g Starch Co.....	"
	" 17...	Avon.....	.....	50 00	Ogd. Coal and Tow.....	"
	1905.					
28	May 23...	J. Lambert.....	60 00	.....	Gt Lakes and St. Lawrence..	"

RECORD OF HIGHEST AND LOWEST LEVELS OF THE WATER ON THE ST. LAWRENCE CANALS FOR THE YEAR ENDING JUNE 30, 1905.

Month.	Cornwall Canal.				Williamsburg Canals.												Murray Canal.			
	Lock 15.		Lock 21.		Lock 22.		Lock 23.		Lock 24.		Lock 25.		Lock 27.							
	Highest.		Lowest.		Highest.		Lowest.		Highest.		Lowest.		Highest.		Lowest.		Highest.		Lowest.	
	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
1904.																										
July	16	9	16	5	17	11	17	5	19	9	19	6	19	7	19	0	19	3	18	7	22	8	22	0	18	1	17	4	15	5	15	1
August	16	7	16	3	18	0	16	5	19	5	18	9	19	6	18	9	19	3	18	5	22	6	21	6	18	1	17	3	15	2	14	8
September	16	7	16	0	17	5	17	0	19	1	18	5	19	2	18	2	18	5	17	6	21	9	21	0	17	8	16	9	15	0	14	0
October	16	4	15	9	17	4	16	3	18	9	17	5	18	9	17	1	18	6	17	2	21	9	19	6	17	6	16	0	14	5	14	0
November	16	0	15	2	16	9	15	9	18	7	17	3	18	4	17	3	18	0	16	5	21	3	19	5	17	6	16	0	14	0	13	3
December	26	6	15	0	16	3	14	4	17	9	16	1	18	1	14	5	17	2	13	1	20	3	15	4	16	5	15	0	13	3	13	0
1905.																										
January	24	5	19	7	15	7	12	0	20	7	15	8	21	9	15	1	16	5	14	0	19	0	16	2	15	9	13	9	13	3	13	0
February	22	0	20	0	15	6	12	9	19	9	17	4	28	0	21	8	20	1	16	2	22	0	18	6	15	4	14	8	13	0	12	4
March	22	6	20	7	15	6	13	3	18	9	17	3	25	0	20	2	18	2	16	3	20	3	18	9	15	6	14	5	13	1	12	0
April	25	0	15	2	16	8	15	7	19	0	17	0	19	2	16	5	17	3	15	5	20	6	18	6	16	7	15	0	13	6	13	1
May	15	8	15	4	16	7	15	8	18	2	17	5	17	9	16	0	17	3	16	5	20	4	19	5	16	7	15	8	13	9	13	2
June	16	1	15	5	17	0	16	0	18	8	17	8	18	5	17	4	17	9	16	8	21	2	20	0	17	0	16	0	14	2	13	7

HARBOUR IMPROVEMENTS.

PORT COLBORNE, Ont.
August 3, 1905

SIR,—I have the honour to submit my annual report on the progress of the works for the improvement of the Port Colborne entrance, Welland canal, for the year ended June 30, 1905.

The contractors for this work are Messrs. Hogan and MacDonell. The condition of the works at date may be described as follows:—North of the lighthouse on the end of the west pier, the work of improving the entrance channel and canal basin are well advanced towards completion. About 90 per cent of the rock excavation along the west pier is drilled and blasted and 50 per cent of it dredged. In the canal basin the excavation is finished except cleaning up the bottom, and the docking along the sides is completed except about 400 lineal feet of concrete superstructure on top of the cribs. South of the lighthouse on the end of the west pier, the deepening of the approach from the lake to the canal is 22 feet, which necessitates the removal of about 220,000 cubic yards of material, is progressing satisfactorily. The material removed is chiefly rock, of which 70 per cent has been dredged, 60 per cent of the balance is drilled and blasted. The cribwork and concrete superstructure forming the two elevator docks are completed, with the exception of an opening 65 feet long, temporarily left open in dock No. 1 to admit scow loads of filling entering. There are yet about 30,000 cubic yards of filling to deposit in dock No. 1. On completion of the elevator foundations in dock No. 2, about 44,000 cubic yards of filling will be required to finish the dock.

The total value of work done and materials delivered up to June 30, 1905, is $955,589.19.

ELEVATOR FOUNDATIONS.

The contract for the construction of the foundations for a 2,000,000 bushel grain elevator was let to Messrs. Larkin & Sangster, May 13, 1905. The elevator is located on dock No. 2 and work on the foundations is now in progress. The ground plan of the building is 170 feet by 212 feet. In addition to the side walls of the dock, the foundation consists of 192 concrete piers resting on the solid rock bottom. At date, 40 piers have been built.

NEW DOCKING ALONG WEST PIER.

In my last annual report, I alluded to the necessity of rebuilding the present west pier, which is in an advanced stage of decay. Since then, plans for executing the work to a depth of 22 feet at low water were prepared and tenders invited for the work, and last June Mr. M. J. Hogan was notified that he had been awarded the work

The work is now in progress. Over half a million feet b.m. of 12″ x 12″ timber for cribwork has been delivered, and the contractor has a small well organized force of carpenters building cribs, several of which have been launched.

I have the honour to be, sir,

Your obedient servant,

ALEX. J. GRANT,
Engineer in Charge.

M. J. BUTLER, Esq.,
Chief Engineer, Railways and Canals,
Ottawa, Ont.

WELLAND CANAL.

SUPERINTENDING ENGINEER'S OFFICE.
ST. CATHARINES, Ont., August 2, 1905.

SIR,—I have the honour to report upon the maintenance and operation of the Welland canal and its branches for the fiscal year ending June 30, 1905.

The canal was closed December 17, 1904, and opened for navigation April 24, 1905.

Two serious accidents occurred during the year: On October 7, 1904, the steamer *Hiawatha,* bound up, carried away the upper gates of lock No. 1, causing a delay to navigation of 21 hours. The damage was repaired at a cost of $1,023.56, which was paid by the steamer.

On May 17, 1905, the steamer *Cuba,* bound up, carried away three gates in lock No. 21, causing a delay to navigation of 24 hours. The rush of water caused the other levels to overflow, injuring the banks somewhat and also doing serious damage to the Grand Trunk Railway tracks in the tunnel under the canal, through which the water found an outlet. The steamer deposited with the canal collector $4,500 in cash, which was the estimated cost of the damage.

The various improvements designed to facilitate navigation through the canal have been carried on satisfactorily during the year.

Messrs. Magann & Phinn, under contract for deepening portions of the summit level between Port Colborne and Thorold, have almost completed their contract.

Messrs. Weddell, Battle & Manley, under contract to deepening the rock cut between Humberstone and Ramey's Bend, have completed their contract.

It is very satisfactory to me to be able to report that both these contracts, which had to be carried on without interfering with navigation, have been completed without a single complaint having been made by any vessel.

During the year four of the old centre pier bridges have been replaced with modern structures, giving a clear channel 100 feet in width.

At Allanburg the new bridge takes the place of the two bridges formerly in use, one across the new canal and one across the old canal.

At Marlatt's crossing the old bridge has been replaced by one of our standard long span bridges.

The substructures of both these bridges were built under contract by Mr. Joseph Battle, and the superstructures by the Dominion Bridge Company.

The old Grand Trunk Railway bridge across the canal between locks 24 and 25 has been replaced by an imposing structure of long span built by the Canadian Bridge Company at Walkerville, the substructure having been built during the winter by Mr. Joseph Battle. This bridge is now operated by electricity and is a great improvement over the old structure, which was a menace to navigation.

Messrs. Rowan & Elliott, under contract, built the substructure of the Niagara street bridge during the winter, and the superstructure was built and erected by the Hamilton Bridge Works Company.

The water was drawn off the new canal between Thorold and Port Dalhousie during the winter, and Mr. Joseph Battle, under contract, renewed the foundation of locks 12, 15 and 16. The entire timber floor, including the mitre sills, of these locks was removed on account of having been undermined, as mentioned in my last report, and a solid concrete floor put in its place. The work was carried on with energy and completed in time for the opening of navigation.

Drawing the water off the new canal caused serious injury to the banks and considerable damage was done to them last winter, the rip-rap protection and a portion of the clay bank sliding into the canal. Instead of repairing these slides in the usual

way, I have been putting in a cheap form of pile protection, which I consider will stop any future sliding and will keep the face of the banks firm in their proper position. Some short stretches put in experimentally last year were very satisfactory.

During the spring the floor and breast wall at the head of lock No. 1 were lowered by the canal staff and a portion of the foot of lock No. 2 flooring was also lowered, thus allowing of 14-foot navigation without the use of the dividing wall between the new and old canals.

Satisfactory progress has been made in changing the valves and hanging gear on the new canal lock gates.

Progress on the installation of an electric light and power plant on the canal has been very slow, but the work is now advancing rapidly and the canal should be lighted from Port Dalhousie to Thorold some time in August.

A distribution station has been built above lock No. 24, at Thorold. This building is made of concrete, with a steel roof. It was built by the canal staff, the roof being supplied by the Hamilton Bridge Works Company.

OLD CANAL.

The water was not drawn off the canal last spring, a fact much appreciated by the power users along the canal.

A new supply weir has been built at Allanburg, under contract, by Mr. Thomas Riley, which will keep up the supply at periods of low water and will enable the old weir to be unwatered for repairs.

GENERAL.

The water in Lakes Erie and Ontario has kept well above normal during most of the year and vessels have had no trouble on account of low water.

The following employees have been superannuated during the year: C. B. Hare and Richard Higgins.

Ed. McLaughlin, a superannuated employee, died on December 13, 1904.

Attached is a statement of moneys collected for damages caused to canal property by different vessels, also a statement showing the highest and lowest record depths of water on the mitre sills of the locks at Port Dalhousie and Port Colborne for each month of the year.

I have the honour to be, sir,

Your obedient servant,

J. L. WELLER,

Superintending Engineer.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

WELLAND CANAL.

STATEMENT of Damages to Welland Canal property during the fiscal year ending June 30, 1905, and the amount paid on account of said damages.

Date of Damage.	Name of Vessel.	Amount of Damage.	Amount Paid.	Date Paid.	Where Paid.
1904.		$ cts.	$ cts.	1904.	
July 24...	Steamer *Neepawah*.....	667 68	667 68	July 25...	Port Dalhousie.
				Nov. 12...	"
" 26...	" *Meriden*.....	189 28	189 28	July 26...	"
Oct. 9...	" *Hiawatha*.....	1,023 56	1,023 56	Oct. 9...	"
" 18...	" *H. G. Dalton*.....	19 88	19 88	Nov. 9...	"
1905.				1905.	
May 17...	" *Cuba*.....	.....	2,000 00	May 22...	Port Colborne.
			2,500 00	" 19...	St. Catharines.
June 1...	Steam Barge *Bayview*.....	25 00	25 00	June 1...	Port Dalhousie.

WELLAND CANAL.

STATEMENT showing the highest and lowest depths of water on the lower mitre sill, Lock No. 27, New Welland Canal, Port Colborne, for the fiscal year ending June 30, 1905.

Months.	Lower Sill.				Months.	Lower Sill.			
	Highest.		Lowest.			Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	1905.	Ft.	In.	Ft.	In.
July.....	18	1	17	9	January.....	15	11	14	11
August.....	17	9	17	5	February.....	15	7	14	1
September.....	17	6	16	10	March.....	15	3	14	11
October.....	17	0	15	11	April.....	16	0	14	2
November.....	16	8	15	10	May.....	16	4	16	0
December.....	16	0	15	6	June.....	16	11	16	2

STATEMENT showing the highest and lowest depths of water on the upper mitre sill, Lock No. 27, New Welland Canal, Port Dalhousie, for the fiscal year ending June 30, 1905.

Months.	Upper Sill.				Months.	Upper Sill.			
	Highest.		Lowest.			Highest.		Lowest.	
1904.	Ft.	In.	Ft.	In.	1905.	Ft.	In.	Ft.	In.
July.....	16	2	15	4	January.....	14	11	13	0
August.....	17	4	14	11	February.....	14	1	12	11
September.....	16	1	14	9	March.....	14	0	12	9
October.....	16	0	14	5	April.....	14	11	13	4
November.....	15	9	14	0	May.....	15	4	14	2
December.....	17	7	13	4	June.....	15	8	14	11

ENGINEER'S OFFICE.

SAULT STE. MARIE, July 31, 1905.

SIR,—I beg leave to submit my annual report upon the improvements in progress of construction to the entrances of the Sault Ste. Marie canal.

EXTENSION TO THE SOUTH PIER.

A contract for building an extension to the south pier at the upper entrance was entered into November 25, 1904, with Messrs. O'Boyle Bros. The contract embraces the construction of a substructure of cribwork to extreme low water mark, and a concrete rear and front wall with a stone core, to the same level as the old pier in existence, or seven feet nine inches above extreme low water, as determined at the time of the construction of the canal. The length of the new extension is to be 800 feet and the width 24 feet on top. The work of construction on this contract was started upon the opening of navigation, when the first shipment of timber was received. Up to the present date good progress has been made, the contractor having five cribs in place filled with stone, two cribs framed and ready for sinking; making in all 575 feet of cribwork. Upon an examination of the existing condition of the bottom of the river at the western extremity of the proposed extension, it was decided that it would be necessary to dredge out the soft material met with to a depth of 6 feet below the required depth of the channel and to provide a foundation for the cribwork by filling in with stone. The dredging was performed by the contractor for dredging and an agreement was entered into with Messrs. O'Boyle Bros. to provide stone filling, which work has been performed.

DREDGING UPPER ENTRANCE.

The contract for the most westerly section of this work was let to Messrs. John Hickler and Henry Hickler, November 17, 1903, and was completed and accepted October 28, 1904.

The contract embraced the removing of six shoals containing 44,255 cubic yards and the removal of all boulders to a depth of 21 feet 5 inches below the extreme low water mark and lying within the limits laid down for the deepening and widening of the channel way.

A contract for a section of the work from the east end of the entrance piers extending westerly one and one-tenth miles, was let to Mr. C. I. Boone May 3, 1905, and embraces the deepening and widening in the vicinity of the entrance piers, the deepening between the piers, the deepening and widening of the shoals close to the canal beacon and the removal of all boulders to a depth of 21 feet 5 inches below extreme low water mark lying within the limits laid down for the deepening and widening of the channel way. Work was started on this contract November 11, 1904, and was closed down for the winter on December 6, 1904. Work was resumed April 13, 1905. The progress of the work has been slow owing to the hard material met with and to the delay of the contractor in getting sufficient plant engaged necessary to complete the work in the time specified.

The completion of this work at an early date is most essential, as from its location it obstructs navigation more than at any other part of the channel, and during its progress will show a decrease in tonnage passing through the locks. The temporary reduction in the width of the channel way makes it dangerous for the larger boats to use it.

EXTENSION TO SOUTH PIER—LOWER ENTRANCE.

A contract for building an extension to the south pier at the lower entrance was entered into February 22, 1904, with William Birmingham. The contract embraces the construction of a substructure of cribwork 800 feet in length and 25 feet in width to within six inches of extreme low water mark, and a concrete rear and front wall with stone core to the elevation of the coping at the lower level of the lock.

During the season of 1904 the cribwork was framed, put in place and filled with stone. The floor for the concrete superstructure was partly put down and completed early in the spring of 1905. Work on the concrete superstructure was started May 17, 1905, and was continuous until completed, July 28, 1905. The proportion of concrete wall under water was much increased owing to the exceptional high water during the past two seasons. The remaining work to be done to complete the contract consists of filling in with stone between the concrete walls and putting in the broken stone and gravel top dressing. Some finishing work is also required to the rear concrete wall. It is expected this work will be completed by the end of August. Owing to the late opening of navigation and the difficulty of getting a shipment of timber, caused also by the shipmasters' strike, the contractor was delayed in getting the substructure of cribwork completed in time to enable him to proceed with the concrete superstructure during the season of 1904. It was also considered much to the advantage of the work to provide for any settlement that might occur during the winter months, as the contractor was unwilling to start the concrete on account of being unable to complete it before the frost set in. From these causes the contractor was unable to complete his contract in the specified time. Upon an application he secured an extension to August 31, 1905, which will permit of ample time to complete the work.

An agreement was entered into with the contractor to provide a rock bank protection at the rear of the cribwork, which work has been satisfactorily performed.

IMPROVEMENTS AT THE UPPER ENTRANCE.

In the improvement work outlined for the channeling at the upper entrance, the middle section, which runs through the Vidal shoal remains to be let. On the completion of this work a channel way 500 feet in width, with a depth at extreme low water mark of 21 feet 5 inches, will have been secured. This will provide safer and better facilities for the ever increasing traffic of the canal.

The extension of the south entrance pier now in course of construction will secure additional accommodation for boats delayed by fogs and storm during the season, besides it forms a protection from the existing cross-current which has in the past been the means of grounding several boats on the bank. The reconstruction of the superstructure of the old piers with concrete similar to the plan adopted in the new extension would be permanent and greatly improve the appearance of the entrances. The present piers are constantly requiring repairs and in a few years will have to be rebuilt.

IMPROVEMENTS AT THE LOWER ENTRANCE.

With the completion of the deepening and widening of the channel way in 1902 at the lower entrance a width of channel 315 feet with a depth of 21 feet 5 inches below low water at the time of the construction of the lock was secured. This width of the channel could be materially increased at a small cost, and would provide a safer and better channel way, by dredging out the elbow or curve from the end of the new pier extension to deep water to a line parallel with the centre ranges now in use. The material excavated from this source being dumped behind the new pier extension would provide additional protection to the structure. With the completion of the

extension to the south pier better accommodation will be provided for boats waiting for lockage and in remaining in port during fogs and storms.

I have the honour to be, sir,

Your obedient servant,

F. B. FRIPP,

Engineer in Charge.

M. J. BUTLER, Esq.,
Chief Engineer and Deputy Minister,
Ottawa.

SAULT STE. MARIE CANAL.

SUPERINTENDENT'S OFFICE,
July 31, 1905.

SIR,—I submit herewith the annual report on the operation and maintenance of this canal for the fiscal year ending June 30, 1905.

The canal was not closed for the season until December 26 (owing to the non-return of the tugs out searching for two lighthouse keepers from Caribou island) having been in operation 241 days, and was reopened for traffic on April 10, being twenty days earlier than in the previous season.

During the fiscal year just closed there were made 3,659 lockages passing through 4,786 registered craft and 274 unregistered vessels and scows, with a total tonnage of 5,878,459 tons, with an average time of 16·583 minutes to each lockage; of this total tonnage 1,753,146 tons was of Canadian vessels, being an increase in this class of tonnage of 335,079 tons.

The extension of the south entrance pier at the lower end of the canal is about completed and when finally done will add greatly to the appearance and general utility of the canal, and the superstructure of the remaining part of that pier should be replaced with concrete so as to harmonize with the new work.

In the early part of the season this spring the tonnage increased very rapidly, but the dredge working in the upper channel soon narrowed down the channel way available for boats and the tonnage fell away very quickly. A couple of vessels struck the bank thrown up by the dredge and did considerable damage to themselves and so helped to make the channel a bad name. The work in the first part of the season was not pushed as fast as it should have been, thus retarding the completion of the work. The extension of the south pier at the upper entrance is being pushed along and the amount now done shows that when completed it will have the desired effect of in a great part of cutting off the strong cross current that now sets across the channel for which purpose the pier is being built.

The daily exchange of vessel reports with the American canal has been carried on as in former years, thus keeping intact the immense volume of the Lake Superior traffic.

We are, as in former years much indebted to Mr. Joseph Ripley, general superintendent of the American canal, for many courtesies shown to us.

The following table gives the traffic passing through the two canals at this point during the season of navigation for the years mentioned.

Year	Number of Vessels passed.	Registered Tonnage of Vessels.	Total Freight Tonnage.	Cost of Carrying per mile. Ton.	Estimated Value of Freight carried.	Percentage of Freight carried in Canadian Vessels.	Number of Passengers.
1855.....	193	106,296	14,503	.....	.....	.....	4,270
1860.....	916	403,657	153,721	.....	.....	.....	9,230
1865.....	997	409,062	181,638	.....	.....	.....	19,777
1870.....	1,828	690,826	539,883	.....	.....	.....	17,153
1875.....	2,023	1,259,534	833,465	.....	.....	.....	19,685
1880.....	3,503	1,734,890	1,321,906	.....	.....	.....	25,766
1885.....	5,380	3,035,987	3,256,628	.....	.....	.....	36,147
1890.....	10,557	8,454,435	9,041,213	1.3	102,214,948	3.5	24,856
1891.....	10,191	8,400,685	8,888,759	1.35	128,178,208	4.0	26,190
1892.....	12,580	10,647,203	11,214,333	1.31	135,117,267	3.8	25,896
1893.....	12,008	8,949,754	10,796,572	1.1	145,436,957	4.1	18,869
1894.....	14,491	13,110,366	13,195,860	.99	143,114,503	3.5	27,236
1895.....	17,956	16,806,781	15,062,580	1.14	159,575,129	3.75	31,656
1896.....	18,615	17,249,418	16,239,071	1.	195,146,842	3.	37,066
1897.....	17,171	17,619,933	18,982,755	.83	218,235,927	3.	40,213
1898.....	17,761	18,622,764	21,234,634	.79	233,069,739	2.2	43,426
1899.....	20,255	21,958,347	25,255,810	1.5	281,364,750	3.1	49,082
1900.....	19,452	22,315,834	25,643,073	1.18	267,011,959	3.	58,555
1901.....	20,041	24,626,976	28,403,065	.99	289,906,865	4.4	59,663
1902.....	22,659	31,955,582	35,961,146	.89	358,306,300	4.	59,377
1903.....	18,596	27,736,444	34,674,437	.92	349,405,014	6.	55,175
1904.....	16,120	24,364,138	31,546,106	.81	334,502,686	6.	37,695

During the season of 1904 the traffic through this canal was 16 per cent of the freight carried and 43 per cent of the passengers, being 5,028,190 tons of freight and 16,089 passengers, compared with the season of 1903 there was a decrease of 473,995 tons, or 9 per cent, a decrease of 15,930 passengers, or about 50 per cent.

The necessity of a small building for the use of the lockmen is more and more apparent. The appropriation for the erection of one not being large enough to cover the cost as tendered for, was allowed to lapse.

The small harbour crew kept on hand at general work have been engaged in levelling up the ground when not otherwise employed, and their work is now beginning to show and a small annual grant should be made for that purpose so that the grounds could be got into shape so as to be fitted up in comparison with those on the American canal, which are a delight to the eye and not a mass of rough rock and grounds as ours now are.

The buildings have been kept in thorough repair and well painted.

The efficiency of the machinery has been maintained.

Cement sidewalks along at least the sides of the lock, if not elsewhere, should be built so as to add to the beauty of the grounds.

Owing to the piers being used in a great measure by several contractors at work on the channels, no repair work has been done on them so far this season.

No damage has been done to the gates or piers by vessels using the canal.

I have the honour to be, sir,

Your obedient servant,

J. C. BOYD,

Superintendent.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

PETERBORO', August 29, 1905.

SIR,—In compliance with your instructions dated July, 1905, to report on the work of construction on the Trent canal, for the fiscal year ending June 30, 1905, I beg to report as follows:—

The only work of construction at present under way is the completion of section No. 3, and the extra work in connection with section No. 2, Simcoe-Balsam lake division, ordered to be done namely the construction of a road and bridge along the fourth concession of Eldon and the construction of the steel work of the hydraulic lock at Kirkfield.

Section No. 3, Simcoe-Balsam Lake.—The contract for this section was awarded to Messrs. Brown & Aylmer on September 6, 1900. The work on this contract consists of constructing five concrete locks, three dams, three swing bridges, the necessary excavation, dredging, protection lining, culverts, &c. The work is well advanced. All the concrete work with the exception of the closures in the No. 1, 2 and 3 dams and a few other small jobs is completed. There is yet considerable excavation, both dry and dredging, to be done, also a considerable length of protection lining to lay, but by the end of this season or the middle of next season all the work should be completed.

Section No. 2, Simcoe-Balsam Lake.—All the work on this section is completed with the exception of the extra work in connection with the raising of a road along the fourth concession of the township of Eldon. The concrete of the high level bridge is completed and the work of raising the road is well advanced and will be completed this season.

Steel Work, Hydraulic Lock.—The contract for the steel work in connection with the construction of the hydraulic lock, on section No. 2, north of Kirkfield, was awarded to the Dominion Bridge Company, of Montreal, on February 15, 1905. The work on this contract is proceeding favourably. The ram and press sections have been cast and the structural work is well under way. The contractors have part of the erection plant on the ground and erected. Judging from the energy shown in the prosecution of this work it will be completed in the time specified in the contract.

I have the honour to be, sir,

Your obedient servant,

RICHARD B. ROGERS, *M. Inst. C.E.*,

Superintending Engineer.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

SUPERINTENDENT'S OFFICE,
PETERBORO', August 28, 1905.

SIR,—I have the honour to submit herewith my report on the maintenance and operation of the Trent canal from May 2, 1905, to the closing of the fiscal year ending June 30, 1905, which period was the portion of the year when the above duties were under my charge.

Navigation opened on April 28, 1905. The depth of water maintained at the various levels since the opening of navigation was excellent, no trouble or delay on account of low water for navigation having occurred anywhere and the lumbermen, although bringing out larger drives than usual, have passed through in much shorter time, and the different power plants on the rivers have in no way made any complaints, but on the contrary have expressed their greatest satisfaction.

On account of the holding back of the water in the reservoir lakes, the spring freshet this year has not done nearly as much damage as usual at the part of the canal below Peterboro'. At one of these lakes (Stony lake) where there are numerous island cottages, the owners have complained of their small temporary wharfs being partly submerged on this account, but the cost to which they have been put has been merely trifling and this slight cost will make these wharfs suitable for all future use. Hence all the requirements of an industrial nature have been more than satisfactorily served by the holding back of the water and in this way making our lakes into reservoirs.

Further, if the Dominion government had control of the many back lakes now controlled by the Ontario government and which feed into the Trent canal and used them also as reservoirs, it seems clear that there would be ample water for all purposes of navigation, lumbering and power along the canal when completed.

The following repairs were made:—

PETERBORO'.

The lowering of the lock sills at Peterboro' lock below Little lake has been completed. Two dump scows were also completed this spring and are now in use. The dredge *Trent* was thoroughly overhauled. The lift lock chambers inside and under water were thoroughly scraped and painted afresh. There was a bad leak in the east bank of the reach above this lock which we repaired at a very considerable cost.

Between Peterboro' and Lakefield all the dams and locks were thoroughly overhauled and repaired.

LAKEFIELD.

At the lock at Lakefield we put the lock gates in order and also had to replank the timber sluices in the dam.

YOUNG'S POINT.

The entrance to Young's Point lock on the north side was dredged so as to give eight feet of water and also we dredged below this lock in Katchewannooka lake.

BURLEIGH.

At Burleigh we repaired the lock gates which also entailed very considerable expenditure.

LOVESICK.

At Lovesick we repaired the platform of the entrance pier on the northeast side and also put new stop-logs in the dam.

BUCKHORN.

At Buckhorn we replaced with oak the timber of the lock gates at the cast-iron quoin casings. At the dam we also rebuilt a sluice pier which was broken and carried away by the ice in the spring.

OPERATIONS OF THE CANAL.

The lift lock at Peterboro' has worked perfectly satisfactorily, never having caused the slightest delay. The average time of lockages is nine minutes. The average number of lockages per day for this season is seven.

The lock at Peterboro' below the town has given the steamboat men very great satisfaction since the sills were lowered.

It is very gratifying to be able to say that along the whole line of the canal the operation and care have given perfect satisfaction to all this year, and thus the employees of the department are leaving no room for any complaints of negligence or delay whatever.

I have the honour to be, sir,

Your obedient servant,

J. H. McCLELLAN.

Superintendent.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

RIDEAU CANAL.

Superintending Engineer's Office.

Ottawa, July 1, 1905.

Sir,—I have the honour to submit herewith, my annual report on the Rideau canal under my charge, for the fiscal year ending June 30, 1905.

Navigation closed at Ottawa November 26, 1904.

Navigation closed at Kingston Mills November 24, 1904.

Navigation opened at Ottawa May 1, 1905.

Navigation opened at Kingston Mills May 1, 1905.

The depth of water maintained in the various levels throughout the entire length of the canal, during the entire season of navigation, was excellent, notwithstanding the break in the retaining dam at Poonamalie in April, 1904—the said damage being temporarily repaired, so that plenty of water was retained in Rideau lake to supply navigation for the whole season.

The spring freshet this year was, I am glad to say, unusually mild, no damage to speak of having been done to the canal works.

The principal works and repairs executed along the line of the canal are as follows:—

OTTAWA.

Two pairs of lock gates were put in, and five new sluice frames. The upper masonry sill of lock No. 1 was repaired and grouted. Five pairs of lock gates were painted, and the lock masonry generally was pointed and grouted. Some new plank were laid in the basin wharfs, and the road round the basin was repaired and macadamized where required.

STEWARTON BRIDGE.

The east approach, which was built on trestle bents, having become unsafe from age, was taken down last winter, and a solid embankment faced with cedar timber

substituted therefor. The swing span was raised, as the pivot pier had settled, and adjusted, and small repairs made to the bridge-keeper's house.

BANK STREET BRIDGE.

The kitchen of the bridge-keeper's house was taken down and rebuilt, as it had become rotten from age. The floor of the swing bridge was renewed with 3-inch plank, and small repairs made to the road.

CONCESSION STREET BRIDGE.

A frame cottage was erected for the bridge-tender at this new bridge, which was completed last year.

HARTWELL'S LOCKS.

The small wooden bridge across the waste water channel is about worn out, and will be rebuilt at once; the new bridge is framed and ready to be erected in the course of a few days. Sundry small repairs were made to the tow-path road, and to the station generally.

HOGSBACK LOCKS.

The lower wing wall of the lower lock on the west side, was taken down and rebuilt by our masons last winter; and several hollow quoin stones were put in on the east side. Some gravel was placed on the tow-path road and the swing bridge approaches. A large body of clay slid out of the reverse slope of the cut last spring; but this slide, which was caused by erosion from the river below during the freshet, will be filled up this summer and a protection of stone built down to the river-bed.

BLACK RAPIDS' LOCK.

Some small repairs were made to the masonry of the lock; but both the upper wing walls of the lock are in bad condition, and will both be taken down and rebuilt with new stone next winter. The long dam is showing signs of age, and will be partially rebuilt and strengthened next winter. Sundry small repairs were made to the station generally.

LONG ISLAND LOCKS.

One new pair of lock gates were put in here. The aprons in front of the bulkhead were unwatered last winter, and rebuilt and replanked, with the result that the leakage at that point has been materially lessened. The piers below the bulkhead will be rebuilt this summer, the timber for the same being now on the ground. Sundry small repairs were made to the station in general.

WELLINGTON BRIDGE.

A new swing span was framed and erected here by our own carpenters. The whole floor of the fixed portion of the bridge requires to be renewed, and the plank is now on the ground, and will be laid in the course of a few days.

MANOTICK BRIDGE.

The pivot of the swing bridge was raised and adjusted.

BECKETT'S LANDING BRIDGE.

The swing span was raised, and small repairs made to the piers and to the railing of the bridge.

BURRITT'S RAPIDS LOCK.

Sundry small repairs were made to the swing bars of the upper gates; and some gravel placed on the dam and embankments. The retaining dam is getting old, and will be partially rebuilt next winter.

NICHOLSON'S LOCKS.

Small repairs were made to the lock masonry. The washout in the roadway leading to the county bridges across the river was repaired, and sundry small repairs were made to the station in general.

CLOWES' LOCK.

Both piers on the south side of the lock were taken down and rebuilt by our own masons; and the chamber walls were grouted with Portland cement. About 40 feet of the stone retaining dam were rebuilt and other portions of it were repaired. A new pair of upper gates were put in, and draw bars for opening the same were substituted for the old swing bars. Sundry small repairs were also made to the station in general.

MERRICKVILLE.

Both the abutments of the 'Snye' bridge were repaired and pointed and grouted, and a wall of the same description of masonry was built to the western end of the north abutment to meet the wall built by the corporation of the village to prevent further damage at this point from the spring freshets and ice. The south chamber wall of the basin lock, and the upper north wing wall and both recess walls in the lower lock were grouted with Portland cement. The north waste weir was repaired, and two new pairs of sluice frames put in.

KILMARNOCK LOCK.

The old wooden swing bridge across the lock was taken down, and a new one framed and erected in its place. Repairs were made to the timber piers of the bulkhead bridge, and also to the flooring; and sundry small repairs to the station in general.

EDMONDS' LOCK.

The old stone lockhouse was taken down on account of the back wall partially collapsing; and a small frame cottage was erected for the lockmaster in its stead. Both the upper wing walls of the lock are in bad shape and will be rebuilt next winter, part of the stone for the work being on the ground. The stone piers of the waste weir also require to be taken down and rebuilt, arrangements for doing which next winter, are being made. Sundry small repairs were made to the station in general.

OLD SLY'S LOCKS.

Sundry small repairs were made to the station in general.

SMITH'S FALLS COMBINED LOCKS.

The heel and toe rest piers of the swing bridge across the upper lock, which were built of timber, and had become rotten, were taken down and replaced with masonry piers, the work being done by our own masons. The old wooden bridge below the basin leading to Jason island was taken down and a fine steel structure of two spans on stone piers erected in its place. The piers were built by our own masons, and the

superstructure was erected under contract by the Dominion Bridge Company of Montreal. One new pair of lock gates was put in and two pairs of new sluice frames; and sundry small repairs to the station in general.

SMITH'S FALLS DETACHED LOCK.

A coffer dam was put in above the lock last winter, and both the upper wing walls taken down as far as the gate piers, and rebuilt. The gate recesses and manholes were grouted with Portland cement. The upper gates were taken out and a new pair put in their place. Sundry small repairs were made to the station in general.

POONAMALIE LOCK.

A new concrete retaining dam was built at this station to replace the old dam that was wrecked last year. This work was done under contract with Mr. John O'Leary, of Ottawa, the department furnishing the cement. Sundry other small repairs were made to the station in general.

BEVERIDGE'S LOCKS.

Repairs were made last winter to the retaining dam and bulkhead, and sundry small repairs to the station in general.

PERTH BASIN.

Small repairs were made to the bridges and planking of the wharfs.

BOB'S LAKE DAM.

This dam, which holds up a reservoir of water for the Tay branch of the Rideau canal, was rebuilt last winter, the old dam being used as a coffer dam to unwater the site of the new dam.

THE 'NARROWS' LOCK.

Some stone and gravel was placed on the long dam, and sundry small repairs made to the station in general.

NEWBORO' LOCK.

Sundry smal repairs made to the station in general.

CHAFFEY'S LOCK.

The swing bridge across the lock was raised. Some new stop-logs were framed, and repairs made to swing bars of lock gates, and sundry small repairs to the station in general.

DAVIS' LOCK.

The waste weir was entirely rebuilt last winter by our own carpenters, and sundry small repairs made to the station in general.

JONES' FALLS LOCKS.

Two new pairs of lock gates were put in here. Stone was delivered for the rebuilding of the smal basin dam; but the work wil lnot be done until next winter.

Some gravel was furnished for the lock walks. A large sink hole at the foot of the lower lock was filled up at the request of the residents to the department. Sundry other small repairs were made to the station in general, and small repairs made to the lock masonry.

BREWER'S UPPER MILLS LOCKS.

Sundry small repairs were made to the station in general.

BREWER'S LOWER MILLS LOCKS.

Sundry small repairs were made to the station in general. The north side of the lock is showing signs of weakness; large plates of cement being washed out through the openings at the bottom of the lock; as well as considerable bulging of the chambed wall. I am making arrangements to take down this side of the lock next winter, and rebuild it.

KINGSTON MILLS LOCKS.

Five new sets of sluices and frames were put in here. Some stone was placed on the embankments, and sundry small repairs made to the masonry and lock gates.

GENERAL.

The pointing and grouting of the lock masonry, and the painting of the lock gates, bridges and other wooden structures, were done as usual this spring by our own lockmen.

The annual supply of cement, amounting this year to 3,000 barrels, was purchased under contract with Messrs. McNally & Co., of Montreal. The dimension timber (Douglas fir) for lock gates, &c., was purchased by contract with the Ottawa Lumber Company, quantity 85,316 feet b.m. The annual supply of white lead was furnished under contract with Messrs. Clark & Lewis, of Smith's Falls, the amount supplied being 4,375 pounds.

DREDGING PLANT.

The dredge *Rideau* was employed the whole of last season in deepening the cut between upper and lower Brewer's Mills lock stations, and she is now working well on the way to the former lock. Her hull and boiler and machinery are in excellent order. Some small repairs were made last spring when fitting out, to her boom and braces supporting the same.

The tug *Shanly* was employed during the whole of last season, in attending to the dredge, delivering stores with her scow, buoying out the channel, and on inspection work.

Last winter her deck-house was removed and her boiler taken out and sent to the shops for repairs; some thin spots in the plate being cut out and patched.

The boat is very old now, having been running for sixteen seasons without being rebuilt, and neither her hull nor her boiler can last much longer.

I attach hereto, a table showing respectively, the highest and lowest water during each month at Ottawa and Kingston Mills lock stations during the past season of navigation.

I have the honour to be, sir,

Your obedient servant,

ARTHUR T. PHILLIPS, M.C.S. C.E.,

Superintending Engineer.

M. J. BUTLER, Esq.,
Chief Engineer Canals.

RIDEAU CANAL.

TABLE showing monthly, the highest and lowest water on the lower mitre sills of Locks Nos. 1 and 47, at Ottawa and Kingston Mills lock stations, respectively, from July 1, 1904, to June 30, 1905.

OTTAWA, LOCK NO. 1.						KINGSTON MILLS, LOCK NO. 47.					
Highest.			Lowest.			Highest.			Lowest.		
	Ft.	In.		Ft.	In.		Ft.	In.		Ft.	In.
July 1.....	16	6	July 31.....	11	1	July 1–20.....	10	0	July 21–31.....	9	11
August 1–2....	11	0	Aug. 31.....	8	9	Aug. 1–6.....	9	11	Aug. 25–31....	9	8
Sept. 30.....	9	3	Sept. 23–24....	7	11	Sept. 1–11.....	9	8	Sept. 20–30....	9	6
Oct. 25–27.....	12	3	Oct. 1.....	9	5	Oct. 1–3.....	9	6	Oct. 28–31....	8	11
Nov. 1–6.....	12	0	Nov. 30.....	9	7	Nov. 1–3.....	8	10	Nov. 28–30....	8	0
Dec. 1–2.....	8	6	Dec. 21–31.....	8	0	Dec. 1.....	8	0	Dec. 30–31.....	6	9
Jan. 5–8.....	8	2	Jan. 14–31....	8	0	Jan. 4–31.....	6	10	Jan. 1–3.....	6	9
Feb. 1–5.....	8	0	Feb. 23–28.....	7	9	Feb. 1–7.....	6	9	Feb. 25–28.....	6	5
Mar. 31.....	10	5	Mar. 11–19....	7	6	Mar. 30–31....	7	10	Mar. 1.....	6	7
April 4.....	15	1	April 1.....	11	4	April 27–30....	8	3	April 1–14.....	7	10
May 23–24.....	17	8	May 1.....	11	7	May 1–14.....	8	3	May 26–30.....	8	5
June 1.....	15	9	June 30.....	11	10	June 1–3.....	8	5	June 28–30....	9	2

RIDEAU CANAL OFFICE,
OTTAWA, July 1, 1905.

ARTHUR T. PHILLIPS,
Superintending Engineer.

DEPARTMENT OF RAILWAYS AND CANALS.

CANALS REVENUE BRANCH,
CANAL OFFICE, ST. PETERS, C.B., June 30, 1905.

SIR,—I have the honour to submit my annual report on work and operation on St. Peters canal, under my charge, during the fiscal year ending June 30, 1905.

Item 1.—Painting swing bridge, two coats white lead and trimming iron work with black paint, placing a new spruce flooring on same, putting in a new hardwood turn-table and placing four new knees at bottom of tower to replace old ones that were in a state of decay, renewing the ballast flooring on west end of bridge and placing two stringers under same.

Item 2.—Completed the repairs to the warehouse flooring, by raising same with jack screws and putting in new flooring.

Item 3.—Had the necessary repairs done to lockhouse roof and painted with two coats white lead, and had a new fence built around that portion of ground surrounding the lockhouse and barn and completed the necessary ditching and draining on south side of government property, a distance of 200 yards.

Item 4.—Had the old fence taken down leading from warehouse south entrance of canal to north entrance, a distance of one-half mile and had same rebuilt in good order.

Item 5.—Painted lock gates with two coats white lead and had all the iron rails, valves, drums, &c., painted with black paint and two coats of red paint on all winches and placed four new lock chains.

Item 6.—Completed the dredging at north entrance canal, west side, so that at present there are no obstructions for steamers and vessels either hauling in or out of canal on that side, also began the dredging at south entrance, but when about half through the dredge broke her main shaft and this work had to be abandoned for at least this season, however, there was sufficient earth removed to make it very much more convenient for steamers and vessels to haul out from wharf.

Item 7.—Part of the tow-path at place where dredge was working at north entrance was undermined, causing some fifty feet of earth and stone to fall through. I had this work completed and it is now in good condition.

The traffic on St. Peters Canal is up to the general standard, with a slight increase in tonnage and volume of trade. During the season of navigation beginning May 2, 1904, up to December 23, 1904, 1,652 steamers and vessels passed up and down the canal. Navigation opened this year on May 1, 1905. The St. Peters canal has one lock and four pairs lock gates, the operating and repairs of canal is in very good condition.

I have the honour to be, sir,
Your obedient servant,
J. H. DEVEREAUX.

COLLINGWOOD SCHREIBER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

OTTAWA, September 11, 1905.

SIR,—I have the honour to report to you upon the progress made during the fiscal year ended June 30, 1905, with the surveys, under my charge, of the various routes of the Trent canal.

In August, 1904, I was instructed to survey a route for the Trent canal from Rice lake to Port Hope, on Lake Ontario, and from Lake Couchiching to the Georgian bay, via the North river, and also via the Severn river.

At a later period I received instructions to survey two additional routes from Rice lake to Lake Ontario, having outlets on the latter lake at Cobourg and Trenton, respectively, also to make surveys of the east and west branches of the Holland river, and of the Black river from Lake Simcoe to Sutton, Ontario, with the object of ascertaining the feasibility and cost of improving the navigation of those streams.

My staff in the field was to consist of four surveying parties, each composed of a transitman, leveller and rodman, with the requisite number of chainmen, axemen, &c. The transitmen, in addition to the duties devolving on such position, were also to act as heads of the respective parties, and for this service Mr. Law, Mr. Hetherington—subsequently succeeded by Mr. Kerr—Mr. Patterson and Mr. Stevens were appointed, the former two taking the field in the latter part of August, and the two latter about the middle of October, 1904.

RICE LAKE TO PORT HOPE SECTION.

The instrumental survey for this route has been completed and, in connection therewith, about 40 miles of line has been run and carefully cross sectioned; Port Hope harbour surveyed and sounded, and soundings were also taken in Rice lake from the mouth of the Otonabee river to Bewdley, the nearest point on the lake to Port Hope.

A number of test borings were made in the deep cutings.

RICE LAKE TO COBOURG SECTION.

The survey of this route was commenced on December 12, 1904.

Four trial lines, aggregating about 22 miles in distance, have been run and levels taken from Rice lake across the summit of the ridge towards Lake Ontario, and about 8 miles of this route has been cross-sectioned, and soundings taken across Rice lake from the mouth of the Otonabee river.

The work on this section was suspended on March 3, 1905, and the party which had been engaged thereon was sent to make a traverse and contour survey of Rice lake.

RICE LAKE SURVEY.

A traverse and contour survey of Rice lake and the islands in this lake was commenced on March 4, 1905, and 58·33 miles of this work has been completed.

This particular survey was deemed essential in view of the possibility of raising the level of the waters of Rice lake, &c.

LAKE COUCHICHING TO GEORGIAN BAY.

Via North River.

A survey has been made from a point on Lake Couchiching, about 3 miles north of Orillia, via Silver creek, and North river to Matchedash bay to Georgian bay, and two alternative lines from Silver creek to the mouth of North river, and via Coldwater, respectively, have been run. Soundings were taken in Matchedash bay for a distance of 4 19/100 miles to a point opposite the mouth of the Severn river.

The survey of this section has been completed, the total number of miles run levelled, cross-sectioned, and sounded in part, amounts to 60 34/100 miles.

SEVERN RIVER ROUTE.

This survey was commenced from the terminus of the North river line in Matchedash bay, about 3 miles from the mouth of the Severn river, and 19 miles was completed, soundings taken, shore lines traversed, position of islands established, &c.

RICE LAKE TO TRENTON.

A route for the canal has been surveyed on the east side of the Trent river from Trenton to about a mile above Frankford, also a route on the west side of the river between the same points, and a traverse of the river made.

The survey has been continued to and for some miles above Chisholm's rapids, and a traverse and contour survey of 'Bradley's bay' and of a large adjoining swamp is proceeding.

During the past winter soundings were taken as follows, viz.: Trenton harbour, from Gilmour's dam to Nigger island in Bay of Quinté; from Nigger island to the Murray canal; and in Rice lake from the mouth of the Otonabee river to Hastings. The total number of miles run in connection with this section was 121 miles.

HOLLAND RIVER SURVEY.

East Branch.

The survey of the east branch of the Holland river from Cook's bay, Lake Simcoe, to Holland Landing, Newmarket, and Aurora has been completed. This included soundings, subaqueous borings, gauging of tributary streams, all available water supply from Lakes Wilcox, Bond, Ferguson and Ball, proposed outlet ditches, sites for storage reservoirs, &c.

In carrying out this work about 100 miles of line was staked out, of which levels were taken over 55 25/100 miles 49 86/100 miles, cross-sectioned, and 17 miles of river sounded.

West Branch.

The survey of the west branch of the Holland river was commenced at the junction of the two branches, and a line 15 21/100 miles in length was run towards Schomberg over which soundings were taken.

I desire to say, in conclusion, that excellent progress is being made with the surveys, the field work of which I hope to have completed during the approaching autumn.

I have the honour to be, sir,
Your obedient servant,

E. J. WALSH, M.C.S. C.E.,
Engineer in Charge.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

PART III

RAILWAY SUBSIDIES

No. 1.

RAILWAY SUBSIDIES.

TABLE of per mile Cash Subsidies paid in aid of Railway Construction, showing amount of Subsidy granted for same Railways.

Number.	Name of Railway.	No. of miles built up to June 30, 1905.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1905.	Subsidy paid to June 30, 1905.	Subsidy paid to September 30, 1905.
				$ cts.	$ cts.	$ cts.
1	Albert Southern	16	16	50,460 00	50,460 00	50,460 00
2	†Atlantic and Lake Superior	30	30	165,734 00	146,490 84	146,490 84
3	†Algoma Central and Hudson Bay	77	91	924,976 00	924,976 00	924,976 00
4	Baie des Chaleurs	70	70	620,000 00	620,000 00	620,000 00
5	Baie of Quinte	15	35	112,000 00	69,120 00	69,120 00
6	Beauharnois Junction	19·50	19·50	62,400 00	62,400 00	62,400 00
7	Belleville and North Hastings	6·84	6·84	21,888 00	21,888 00	21,888 00
8	Beersville Coal and Railway Co	6·48	7	20,736 00	20,736 00	20,736 00
9	Brantford, Waterloo and Lake Erie	18	18	57,600 00	57,600 00	57,600 00
10	Brockville, Westport and Sault Ste. Marie	44·50	44·50	105,200 00	105,200 00	105,200 00
11	Bruce Mines and Algoma	18	18	53,920 00	53,920 00	53,920 00
12	Buctouche and Moncton	31·75	31·75	101,600 00	101,600 00	101,600 00
13	Canada Atlantic	54·05	54·05	282,355 20	282,355 20	282,355 20
14	Canada Central	120	120	1,525,250 00	1,525,250 00	1,525,250 00
15	†Canada Eastern	107	107	350,400 00	350,400 00	350,400 00
16	†Canadian Pacific	1,905	1,905	25,000,000 00	25,000,000 00	25,000,000 00
17	" (extension)*	676	695·83	5,814,246 00	5,814,246 00	5,814,246 00
18	†Cape Breton extension	30	30	182,400 00	182,400 00	182,400 00
19	Caraquet	67	67	224,000 00	224,000 00	224,000 00
20	Central (of New Brunswick)	45·66	89·50	238,400 00	142,400 00	142,400 00
21	Cornwallis Valley	14	14	44,800 00	44,800 00	44,800 00
22	Columbia and Kootenay	27 75	27·75	88,800 00	88,800 00	88,800 00
23	†Canadian Northern	490	490	1,909,132 00	1,909,132 00	1,909,132 00
24	Chateauguay and Northern	36·48	58	307,595 00	191,595 00	191,595 00
25	Cap de la Madeleine	2·32	2·32	7,424 00	7,424 00	7,424 00
26	†Coast of Nova Scotia (now Halifax and Yarmouth)	50	61	160,000 00	160,000 00	160,000 00
27	†Central Ontario	21	40	67,200 00	67,200 00	67,200 00
28	Cumberland	14	14	39,850 00	39,850 00	39,850 00
29	Dominion Lime Co	4·80	4·80	15,360 00	15,360 00	15,360 00
30	Dominion Coal Co	27·44	27·44	87,808 00	87,808 00	87,808 00
31	†Drummond Counties	133·00	135·60	423,936 00	423,936 00	423,936 00
32	†East Richelieu Valley	21·86	21·86	69,952 00	69,952 00	69,952 00
33	Elgin, Petitcodiac and Havelock	12	12	38,400 00	38,400 00	38,400 00
34	Erie and Huron	30	30	96,000 00	96,000 00	96,000 00
35	Esquimalt and Nanaimo	71	71	750,000 00	750,000 00	750,000 00
36	Fredericton and St. Mary's Bridge Co	1·33	1·33	30,000 00	30 000 00	30,000 00
37	Grand Trunk, Georgian Bay and Lake Erie	12·42	12·42	39,744 00	39,744 00	39,744 00
38	Grand Trunk	Bridge.	Bridge.	500,000 00	500,000 00	500,000 00
39	Great Eastern	12·50	12·50	40,345 00	40,345 00	40,345 00
40	†Great Northern	140·42	143·59	557,788 31	557,788 31	557,788 31
41	Guelph Junction	15·25	15·25	46,000 00	46,000 00	46,000 00
42	†Gulf Shore	16·78	16·78	53,699 20	53,699 20	53,699 20
	Carried forward	4,512·13	4,667·61	41,287,398 71	41,013,275 55	41,013,275 55

TABLE of per mile Cash Subsidies granted and paid in aid of Railway Construction, &c.—*Continued.*

Number.	Name of Railway.	No. of miles built up to June 30, 1905.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1905.	Subsidy paid to June 30, 1905.	Subsidy paid to September 30, 1905.
				$ cts.	$ cts.	$ cts.
	Brought forward	4,512·13	4,667·61	41,287,398 71	41,013,275 55	41,013,275 55
43	Halifax and South Western	98	231	739,200 00	477,264 00	477,264 00
44	Harvey Branch	3	3	5,553 57	5,553 57	5,553 57
45	Hereford	48·50	48·50	155,200 00	155,200 00	155,200 00
46	Irondale, Bancroft & Ottawa	45	45	144,000 00	144,000 00	144,000 00
47	International (Quebec)	49	49	156,800 00	156,800 00	156,800 00
48	International (N.B.), formerly Restigouche and Western	15	110	100,180 00	77,138 00	77,138 00
49	†Inverness Ry. & Coal Co	60·97	98	390,208 00	368,545 97	368,545 97
50	Joggins	12	12	37,500 00	37,500 00	37,500 00
51	Kingston and Pembroke	15	15	48,000 00	48,000 00	48,000 00
52	Kingston, Napanee and Western	61·35	61·35	208,732 80	208,732 80	208,732 80
53	L'Assomption	3·50	3·50	11,200 00	11,200 00	11,200 00
54	†Lake Erie and Detroit River	126·90	128·05	475,851 00	475,851 00	475,851 00
55	Lake Temiscamingue Colonization	45·84	45·84	310,335 95	310,335 95	310,335 95
56	Leamington and Lake St. Clair	16	16	51,200 00	51,200 00	51,200 00
57	Lindsay, Bobcaygeon and Pontypool	38·70	38·70	185,173 06	185,173 06	185,173 06
58	Lotbinière and Megantic	30	30	96,000 00	96,000 00	96,000 00
59	Manitoulin and North Shore	12·60	12·60	204,800 00	32,000 00	32,000 00
60	Middleton and Victoria Beach	41	41	131,200 00	47,789 00	47,789 00
61	Montreal & Sorel (now South Shore)	61·50	126·67	517,541 92	296,998 38	296,998 38
62	Montreal and Lake Champlain	83	83	103,600 00	103,600 00	103,600 00
63	Montreal and Western	70	70	361,270 00	361,270 00	361,270 00
64	Montreal and Lake Maskinongé	12·90	12.90	41,280 00	41,280 00	41,280 00
65	Montreal and Ottawa	60	60	192,000 00	192,000 00	192,000 00
66	†Montreal and Province Line	18·3	18·3	58,560 00	58,560 00	58,560 00
67	Montfort Colonization	32·20	32·20	167,440 00	167,440 00	167,440 00
68	Maganetawan River	1·11	1·11	3,552 00	3,552 00	3,552 00
69	†Massawippi Valley	1·68	1·68	5,376 00	5,376 00	5,376 00
70	†Midland (Nova Scotia)	57·18	58	365,418 00	362,200 30	362,200 30
71	Nakusp and Slocan	36·80	36·80	117,760 00	117,760 00	117,760 00
72	New Brunswick and P. E. Island	35·45	35·45	113,440 00	113,440 00	113,440 00
73	New Brunswick Coal and Ry.	15	45	144,000 00	48,000 00	48,000 00
74	New Glassgow Iron and Coal Co	12·45	12·45	39,840 00	39,840 00	39,840 00
75	Northern Colonization	20·90	22	146,170 00	58,384 00	146,170 00
76	Northern Pacific Junction	110	110	1,320,000 00	1,320,000 00	1,320,000 00
77	Nova Scotia Central	73·50	73·50	235,200 00	235,200 00	235,200 00
78	Ontario, Belmont and Northern	9·60	9·60	30,720 00	30,720 00	30,720 00
79	Ontario and Quebec	61·25	61·25	196,000 00	196,000 00	196,000 00
80	Orford Mountain	26·50	53·50	171,200 00	123,050 00	123,050 00
81	Oshawa Railway and Navigation Co.	7	7	22,400 00	22,400 00	22,400 00
82	†Ottawa, Northern and Western (formerly Ottawa & Gatineau Valley)	82·28	86	410,688 00	410,688 00	410,688 00
83	†Ottawa and New York	53·87	53·87	262,384 00	262,384 00	262,384 00
84	†Ottawa, Arnprior and Parry Sound	159·58	159·58	779,712 00	779,712 00	779,712 00
85	Parry Sound Colonization	47·75	47·75	152,800 00	152,800 00	152,800 00
86	Pontiac and Pacific Junction	70	70	193,578 00	193,578 00	193,578 00
87	†Phillipsburg Junction	7·41	7·41	23,712 00	23,712 00	23,712 00
88	Pontiac and Renfrew	4·25	4·25	13,600 00	13,600 00	13,600 00
89	Pontiac and Pacific and Ottawa and Gatineau	Bridge.	Bridge.	212,500 00	212,500 00	212,500 00
90	†Pembroke Southern	20	20	64,000 00	64,000 00	64,000 00
91	Port Arthur, Duluth and Western	84·75	84·75	271,200 00	271,200 00	271,200 00
92	Quebec Central	74·86	74·86	348,342 00	348,342 00	348,342 00
93	Quebec Bridge Co	Bridge.	Bridge.	374,353 33	374,353 33	374,353 33
94	Quebec and Lake St. John	245·85	245·85	1,006,743 50	1,006,743 50	1,006,743 50
95	Quebec, Montmorency & Charlevoix	30	30	96,000 00	96,000 00	96,000 00
96	Shuswap and Okanagan	51	51	163,200 00	163,200 00	163,200 00
97	South Norfolk	17	17	54,400 00	54,400 00	54,400 00
98	St. Catharines and Niagara Central	12	12	38,400 00	38,400 00	38,400 00
	Carried forward	7,001·41	7,550·88	53,556,913 84	52,264,242 41	52,352,028 41

TABLE of per mile Cash Subsidies granted and paid in aid of Railway Construction, &c.—*Concluded.*

Number.	Name of Railway.	No. of miles built up to June 30, 1905.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1905.	Subsidy paid to June 30, 1905.	Subsidy paid to September 30, 1905.
				$ cts.	$ cts.	$ cts.
	Brought forward	7,001·41	7,550·88	53,556,913 84	52,264,242 41	52,352,028 41
99	St. Clair Frontier Tunnel	2·23	2·23	375,000 00	375,000 00	375,000 00
100	St. Lawrence and Lower Laurentian	38·85	38·85	217,600 00	217,600 00	217,600 00
101	St. Louis, Richibucto & Buctouche	7	7	22,400 00	22,400 00	22,400 00
102	†St. Lawrence and Adirondack	33·51	33·51	149,481 60	149,481 60	149,481 60
103	†St. Mary River	44	46	177,400 00	148,094 00	148,094 00
104	St. Stephen and Milltown	4·64	4·64	14,848 00	14,848 00	14,848 00
105	Schomberg and Aurora	14·42	14·42	46,144 00	46,144 00	46,144 00
106	Temiscouata	112·95	112·95	645,950 00	645,950 00	645,950 00
107	†Thousand Islands	5·19	5·19	29,840 00	29,840 00	29,840 00
108	†Tilsonburg, Lake Erie and Pacific	33·96	47·50	117,431 48	117,431 48	117,431 48
109	Tobique Valley	27·88	27·88	134,016 00	134,016 00	134,016 00
110	Toronto, Grey and Bruce	4·58	4·58	14,656 00	14,656 00	14,656 00
111	†United Counties	59	59	188,816 00	188,816 00	188,816 00
112	Waterloo Junction	10·25	10·25	32,800 00	32,800 00	32,800 00
113	Western Counties	20	20	500,000 00	500,000 00	500,000 00
114	West Ontario Pacific	18·75	18·75	60,000 00	60,000 00	60,000 00
115	York and Carleton	5·73	5·73	18,336 00	18,336 00	18,336 00
	Total	7,444·35	8,009·36	56,301,632 92	‡54,979,655 49	55,067,441 49

‡ Add subsidy of used rails as per statement, part iii., page 7, $152,305.20, and Atlantic and North-Western, $2,985,600.00, less subsidy Canadian Pacific Railway, main line, $25,000,000, and Western Counties Railway, $500,000, which will then agree with statement of subsidies in part ii, page 49, viz., $32,617,560.69.

* Includes the mileage of the North Shore Railway, 160 miles.

† By 60-61 Vic., cap. 4, 62-63 Vic., cap. 7, 63-64 Vic., cap. 8, 1 Edward VII., cap. 7, 3 Edward VII., cap. 57, and 4 Edward VII., cap. 34, subsidy was authorized on certain mileage of this railway, specified in the Act of Parliament, of $3,200 per mile and a further subsidy beyond the sum of $3,200 per mile, of 50 per cent on so much of the *average cost* of the said specified mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile.

The amount of certain of the subsidies authorized by Parliament given in this statement, includes the determined portion of the subsidies under 60-61 Vic., cap. 4, 62-63 Vic., cap. 7, 63-64 Vic., cap. 8, and 1 Edward VII., cap. 7, 3 Edward VII., cap. 57, and 4 Edward VII., cap. 34, viz. : The amonut produced by the $3,200 per mile, but the other portion is now an undetermined amount, and therefore cannot be shown here.

STATEMENT showing Railways receiving Cash Subsidies of fixed amounts, payable Annually or Semi-annually for fixed periods of years.

No.	Name of Railway.	Miles Subsidized.	Amount of Instalment.	Amount. paid up to June 30, 1905.
				$ cts.
1	International (Atlantic and North-west Railway Co.)	252	$93,300 per ½ a year for 20 years	2,985,600
2	Kingston, Smith's Falls and Ottawa Railway Co	56	$ 3,136 " 21 "	Nil.
	Total	308		2,985,600

STATEMENT showing Railways aided by the Grant of Loans.

No.	Name of Railway.	Amount of Loans authorized.	Amount loaned.
		$	$ cts.
1	Albert Railway Co	15,000	14,725 56
2	Fredericton and St. Mary's Bridge Co	300,000	300,000 00
3	St. John Bridge and Railway Extension Co	500,000	433,900 00
	Total	815,000	748,625 56

STATEMENT showing Railways subsidized by the Grant of used Iron Rails valued at the amount set forth.

No.	Name of Railway.	Tons of used Rails.	Subsidy on value of Rails.	Subsidy on used Rails paid.
			$ cts.	$ cts.
1	Central Railway Co. of New Brunswick	4,052	83,612 54	83,612 54
2	Elgin, Petitcodiac and Havelock Ry. Co	2,201	44,252 82	44,252 82
3	Chatham Branch Railway Co	958	24,439 84	24,439 84
	Total	7,211	152,305 20	152,305 20

STATEMENT showing Railways aided by the Loan of used Iron Rails valued at the amount set forth.

No.	Name of Railway.	Tons of used Rails.	Value of used Rails loaned.	Remarks.
			$ cts.	
1	Kent Northern Railway Co	2,549	58,334 27	By 51 Victoria, chapter 3, these used rails will be granted as a subsidy, (the section of road to be first laid with new steel rails weighing not less than 50 lbs. per lin. yard and after an O.C, had been passed authorizing transfer.)
2	Halifax Cotton Co	233	4,335 00	
3	Steel Company of Canada	597	11,964 66	
4	Albert Railway Company	726	14,665 45	
	Total	4,105	89,299 38	

No. 2

LIST OF RAILWAY SUBSIDY ACTS PASSED IN EACH YEAR.

NOTE.—The marginal number opposite each subsidy has reference to the alphabetical list in the Deputy Minister's report showing the action taken in cases where a contract for work has been made with any company.

By the Acts of Parliament below specified, authority has been placed in the hands of the Governor in Council to grant, upon certain conditions, aid towards the construction of various lines of railway throughout the Dominion, as follows, namely :—

By the Acts of 45 Vic., cap. 14, 1882 *(Assented to 17th May, 1882)* :—

1. For a railway from Gravenhurst to Callander, both in the province of Ontario, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole $660,000

2. For a railway from St. Raymond to Lake St. John, both in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 384,000

3. For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the province of Quebec, or between them, to Edmundston, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 240,000

4. For a railway from Oxford to New Glasgow, both in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 224,000

"The said subsidies to be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to complete the said railways respectively, within a reasonable time, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in an agreement to be made by the company with the Government, and which the Government is empowered to make, and to be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, such proportion to be established by the report of the said Minister; provided always, that the granting of such bonuses or subsidies shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting therewith, as the Governor in Council may determine."

By the special Act 45 Vic., cap. 55, 1882 *(Assented to 17th May, 1882)* :—

5. A subsidy authorized in favour of "The Chignecto Marine Transport Railway Company," provided that they construct and thereafter maintain and operate a ship railway, to be approved by the Government, across the Isthmus of Chignecto, from the Gulf of St. Lawrence to the Bay of Fundy, per year, for twenty-five years..... $150,000

By the Act 46 Vic., cap. 25, 1883 *(Assented to 25th May, 1883)* :—

6. To the Baie des Chaleurs Railway Company, for 100 miles of their railway, from Métapediac, on the Intercolonial Railway, to Paspebiac, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 320,000

7. To the Caraquet Railway Company, for 36 miles of their railway, from a point near Bathurst to Caraquet, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $115,200

8. To the Gatineau Valley Railway Company, for the first 50-mile section of their railway, from Hull station, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 160,000

9. To the Great American and European Short Line Railway Company, for 80 miles of their railway, from Canso to Louisburg or Sydney, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 256,000

10. To the International Railway Company, for 49 miles of their railway, from Sherbrooke, in the province of Quebec, to the international boundary line, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 156,800

11. To the Northern and Western Railway Company, for 32 miles of their railway, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy village, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 102,400

12. To the Montreal and Western Railway Company, for the first 50-mile section of their railway, out of St. Jérôme, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 160,000

13. To the Napanee, Tamworth and Quebec Railway Company, for 28 miles of their railway, from Napanee to Tamworth, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 89,600

14. To the Quebec and Lake St. John Railway Company, for 25 miles of their railway, from St. Raymond to Lake St. John, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 80,000

In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.

15. For a railway from the International Railway at Petitcodiac to Havelock Corner, in the province of New Brunswick, 12 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

16. For a railway from Gravenhurst to Callander, 110 miles, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole 660,000

In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.

"The nine subsidies first mentioned to be granted to the companies hereinbefore named respectively; and the two subsidies last mentioned to be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to complete the said railways, respectively; and all the eleven lines above mentioned, and also the lines of railway in respect of which it is provided by the Act of forty-fifth Victoria, chapter fourteen, that subsidies may be granted, shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years from and after the passing of this Act, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made by each company with the Government, and which the Government is empowered to make; and all the said subsidies authorized by this Act, respectively, to be paid out of the Consolidated Revenue Fund of Canada by instalments, on the completion of each section of not less than ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, to be established by the report of the said Minister; Provided always, that the granting of such subsidies shall be subject to such conditions for securing such running powers

or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized as the Governor in Council may determine."

By the special Act 46 Vic., cap. 26, 1883 *(Assented to 25th May, 1883)*:—

17. An advance authorized in favour of the "St. John Bridge and Railway Extension Company," to enable them to build a railway bridge across the River St. John, N.B., with railway connection with the Intercolonial, such advance to be secured by a mortgage on their entire property, not to exceed 80 per cent of the expenditure on the work, nor a total sum of ..... $ 500,000

By the Act 47 Vic., cap. 8, 1884 *(Assented to 19th April, 1884)*:—

18. To the Government of the province of Quebec, in consideration of their having constructed the railway from Quebec to Ottawa, forming a connecting line between the Atlantic and Pacific coasts via the Intercolonial and Canadian Pacific Railways, and being as such a work of national and not merely provincial utility, a subsidy not exceeding $6,000 per mile for the portion between Quebec and Montreal, 159 miles, nor exceeding in the whole 954,000

19. And for the portion between Montreal and Ottawa, 120 miles, $12,000 per mile, nor exceeding in the whole 1,440,000

20. For the construction of a line of railway connecting Montreal with the harbours of St. John and Halifax by the shortest and best practicable route, after the report of competent engineers, a subsidy not exceeding $170,000 per annum, for fifteen years, or a guarantee of a like sum for a like period as interest on bonds of the company undertaking the work.

21. For the construction of a line of railway from Oxford station, on the Intercolonial Railway, to Sydney or Louisburg, a subsidy not exceeding $30,000 per annum for fifteen years or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work, in addition to the subsidies previously granted, and also a lease or transfer to such company of the Eastern Extension Railway, from New Glasgow to Canso, with its present equipment.

22. To the Quebec Central Railway Company, for a line of railway from Beauce Junction to the international boundary line, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 211,200

23. For the extension of the Canadian Pacific Railway, from its terminus at St. Martin's Junction, near Montreal, or some other point on the Canadian Pacific Railway, to the harbour of Quebec, in such manner as may be approved by the Governor in Council, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole 960,000

24. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the Victoria branch of the Midland Railway to the village of Bancroft, in the township of Dungannon, county of Hastings, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 160,000

25. To the Pontiac Pacific Junction Railway, for a line of railway from Hull or Aylmer to Pembroke, provided the Ottawa River is crossed at some point not east of Lapasse, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 272,000

26. To the Gatineau Railway Company, for a line of railway from Kazuabazua to Le Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 160,000

27. To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth to Bogart and Bridgewater, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 70,400

28. To the Montreal and Western Railway Company, for a line of railway from the end of the line subsidized in the now last session of Parliament, towards Le Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $160,000

29. To the Northern and Western Railway Company, for a line of railway from Fredericton to the Miramichi River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole (instead of the subsidy proposed in 1883) 128,000

30. To the Erie and Huron Railway Company, for a line of railway from Wallaceburg to Sarnia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000

31. To the Ontario and Pacific Railway Company, for a line of railway from Cornwall to Perth, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 262,400

32. To the Kingston and Pembroke Railway Company, for a line of railway from Mississippi to Renfrew, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000

33. To the Great Northern Railway Company, for that portion of their railway between St. Jérôme and New Glasgow, in the county of Terrebonne, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 32,000

34. For a line of railway and bridge between the Jacques Cartier Union Railway Junction with the Canadian Pacific Railway and St. Martin's Junction connecting the Jacques Cartier Union Railway with the North Shore Railway proper, a subsidy not exceeding in the whole 200,000

35. For a line of railway from Richibucto to St. Louis, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400

36. For a line of railway from Hopewell to Alma, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 51,200

37. For a line of railway from St. Andrew's to Lachute, in the county of Argenteuil, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400

38. For a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 217,600

39. For a line of railway from Annapolis to Digby, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 64,000

40. For a line of the Central Railway, from the head of Grand Lake to the Intercolonial Railway between Sussex and St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000

41. To the Caraquet Railway Company, for the extension of their line of railway from Caraquet to Shippegan Harbour, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 76,800

42. For a branch of the Intercolonial Railway, from Metapediac eastward towards Paspebiac, twenty miles, in the province of Quebec, a sum not exceeding in the whole 300,000

43. For a branch of the Intercolonial Railway, from Derby Station to Indiantown, fourteen miles, a sum not exceeding in the whole 140,000

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies, respectively; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies are

granted shall be commenced within two years from the first day of July next and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, except the line mentioned in the fourth section of this Act,* which shall be commenced within one year, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister. The subsidies to the province of Quebec shall be capitalized, and the interest shall be payable at such time and in such manner as the Government of Canada shall agree upon with the Government of the said province. The two subsidies last mentioned in the list are for works to be constructed by the Government of Canada.

"Provided, always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council may determine."

By the special Act 47 Vic., cap. 6, 1884 *(Assented to 19th April, 1884)*:

44. Relating to an agreement with the province of British Columbia, authority was given, *inter alia*, for the grant of a subsidy to the "Esquimalt and Nanaimo Railway Company" in aid of the construction of a line of railway and telegraph between the points named; such subsidy to be in lands *en bloc* on Vancouver Island, the boundaries being fixed by the Act, and in money $750,000

By the Act 48-49 Vic., cap. 59, 1885 *(Assented to 20th July, 1885)*:

45. To the Ottawa, Waddington and New York Railway and Bridge Company, for a line of railway from Ottawa to Waddington, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 166,400

46. To the New Brunswick and Prince Edward Island Railway Company, for a line of railway from Sackville to the Straits of Northumberland, at or near Cape Tormentine, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 118,400

47. To the Montreal and Sorel Railway Company, for a line of railway from St. Lambert to Sorel, a subsidy not exceeding $1,600 per mile, nor exceeding in the whole 72,000

48. To the Brockville, Westport and Sault Ste. Marie Railway Company, for a line of railway from Brockville to Westport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000

49. To the Quebec and Lake St. John Railway Company, for a line of railway from its junction on the North Shore Railway to St. Raymond, upon condition of the company extending their road to a point 50 miles north of St. Raymond, a subsidy not exceeding $3,200 per mile nor exceeding in the whole 96,000

50. To the Northern and Western Railway Company, for a line of railway from the northern end of the 40 miles subsidized between Fredericton and the Miramichi River by 47 Victoria, chapter 8, to Boiestown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 19,200

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* The extension of the Canadian Pacific Railway from its terminus at St. Martin's Junction, or some other point on the said railway to the harbour of Quebec.

51. To the Montreal and Champlain Junction Railway Company, for a line of railway from Brosseau's to Dundee, a subsidy not exceeding $500 per mile, nor exceeding in the whole $30,000

52. To the Thunder Bay Colonization Railway Company, for a line of railway from the Murillo station of the Canadian Pacific Railway to the east end of Whitefish Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 92,000

53. To the Central Ontario Railway Company, for a line of railway from Coe Hill or Rathbun, to Bancroft, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

54. To the Belleville and North Hastings Railway Company, for a line of railway from the village of Madoc to the junction with the Central Ontario Railway at Eldorado, a subsidy not exceeding $1,500 per mile, nor exceeding in the whole 10,500

55. For a line of railway from Long Sault to the foot of Lake Temiscamingue, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 25,600

56. For a line of railway from a point on the Canada Southern Railway near Comber, to Lake Erie, at or near the village of Leamington, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.... 44,800

57. To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth towards Bogart and Bridgewater, 16 miles, in lieu of the subsidy granted by 47 Vic., chap. 8, a subsidy of..... 70,000

58. To the Gatineau Railway Company, for a line of railway from Hull station towards Le Désert, a distance of 62 miles, in lieu of the subsidies granted by 46 Vic., chap. 25, and 47 Vic., chap. 8, a subsidy of.... 320,000

59. For a line of railway from the Grand Piles, on the River St. Maurice, to its junction with Lake St. John Railway, a distance of about 50 miles, in lieu of the subsidy granted by 47 Vic., chap. 8, for a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward, a subsidy of..... 217,600

60. To the Canada Atlantic Railway Company, for a line of railway from Valleyfield to a point one and a half miles west of Johnston's, a subsidy not exceeding $1,600 per mile, and from one and a half miles west of Johnston's to Lacolle; also from the present terminus at Ottawa, to the Chaudiere Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

61. For a line of railway from Indiantown via the Miramichi Valley, to its junction with the Northern and Western Railway at or near Boiestown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 140,800

The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies, respectively; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways, respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions, specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister.

"Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connected with those so subsidized, as the Governor in Council may determine."

By the Act 48-49 Vic., cap. 58, 1885 *(Assented to 20th July, 1885)*:—

62. For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the province of Quebec, to Edmundston, in the province of New Brunswick, a subsidy not exceeding two thousand eight hundred dollars per mile for seventy-five miles, and six thousand dollars per mile for eight miles, nor exceeding in the whole two hundred and fifty-eight thousand dollars; the said subsidy to be in addition to the subsidy authorized to be granted in aid of the construction of the said railway by the Act forty-fifth Victoria, chapter fourteen, and constituting with the subsidy so authorized, a subsidy not exceeding in the whole four hundred and ninety-eight thousand dollars, and to be granted for the said railway upon the terms and conditions specified in the said Act, and payable out of the Consolidated Revenue Fund of Canada; and for the purpose of incorporating the persons undertaking the construction of the said railway and those who shall be associated with them in the undertaking, the Governor may grant to them, under such corporate name as he shall deem expedient, a charter conferring upon them the franchises, privileges and powers requisite for the said purposes, which shall be similar to such of the franchises, privileges and powers granted to railway companies during the present session as the Governor shall deem most useful or appropriate to the said undertaking; and such charter being published in the *Canada Gazette*, with any Order or Orders in Council relating to it, shall have force and effect as if it were an Act of the Parliament of Canada.

63. For a line of railway from the south bank of the St. Lawrence river, opposite or near Montreal, to the harbours of St. Andrew's, St. John and Halifax, via Sherbrooke, Moosehead Lake, Mattawamkeag, Harvey, Fredericton and Salisbury, a subsidy not exceeding eighty thousand dollars per annum for twenty years, forming in the whole, together with the subsidy authorized by the Act forty-seventh Victoria, chapter eight, for a line of railway connecting Montreal with the said harbours of St. John and Halifax by the shortest and best practicable route, which the line above described is found to be, a subsidy not exceeding two hundred and fifty thousand dollars per annum, the whole of which shall be paid in aid of the construction of such a line of railway for a period of twenty years, or a guarantee bond of a like sum for a like period as interest on the bonds of the company undertaking the work; the said subsidy to be so granted upon the terms and conditions of and payable out of the Consolidated Revenue Fund in the manner specified in the said last mentioned Act in respect of the subsidy thereby authorized in aid of the said line of railway.

64. The Governor in Council may grant a further subsidy as an aid towards procuring free access as hereinafter described for the trains and traffic of the Canadian Pacific Railway Company from St. Martin's Junction, near Montreal, or from some other point on their railway to be selected by the said company, to the harbour of Quebec, in such a manner as shall be approved by the Governor in Council, that is to say: an additional subsidy not exceeding three hundred and forty thousand dollars, constituting, together with the subsidy authorized by the said last mentioned Act, to aid in procuring the extension of

the Canadian Pacific Railway to Quebec, and the subsidy also thereby authorized to aid in constructing a line connecting the Canadian Pacific Railway at the Jacques Cartier Union Junction with the North Shore Railway proper (which subsidies shall be applicable to the said first mentioned purpose) a sum not exceeding in the whole the sum of one million five hundred thousand dollars, payable out of the Consolidated Revenue Fund of Canada.

The said Act further provided as follows in relation to this matter:—

"If it should be expedient so to do in order to facilitate such access, the Governor in Council may acquire the North Shore Railway, and may apply the said sum of one million five hundred thousand dollars, or any part thereof, in aid of such acquisition and upon such acquisition may transfer and convey or lease the said railway to the Canadian Pacific Railway Company, subject to such obligation as the Government shall have assumed in acquiring it."

By the Act 49 Vic., cap. 10, 1886 (*Assented to 2nd June, 1886*):—

65. For a railway from a point at or near Moncton, to Buctouche, in the province of New Brunswick, thirty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 96,000

66. For a railway from Ingersoll via London to Chatham, in the province of Ontario, eighty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 256,000

67. To the Northern and Western Railway Company, for ten miles of their railway, intervening between the termini of the portions of their railway for which subsidies are already granted, the one from Fredericton and the other from Indiantown, and an extension of two miles down to deep water at Chatham, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 32,000

68. To the Caraquet Railway Company, for ten miles of their railway, from the end of the present subsidized portion at Lower Caraquet to Shippegan, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

69. To the Lake Erie, Essex and Detroit River Railway Company, for thirty-seven miles of their railway, from Windsor to Leamington, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 118,400

70. To the Thunder Bay Colonization Railway Company, for fifty-six miles of their railway, from the end of the present subsidized section to a point near Crooked Lake, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 179,200

71. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, on the line of the Northern Pacific Junction Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 128,000

72. For a railway from a point at or near New Glasgow or St. Lin, to or near to Montcalm, in the province of Quebec, eighteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

73. For a railway from Hereford to the International Railway, in the township of Eaton, in the province of Quebec, thirty-four miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 108,800

74. For a railway from St. Félix to Lake Maskinongé, parish of St. Gabriel in the province of Quebec, ten miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

75. For a railway from Glenannan to Wingham, in the province of Ontario, five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

76. For a railway from a point at or near the McCann Station, on the Intercolonial Railway, to the Joggins, onCumberland Basin, in the province of Nova Scotia, twelve miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 38,400

77. For a railway from L'Assomption to L'Epiphanie, in the province of Quebec, three miles and a half, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 11,200

78. To the Montreal and Western Railway Company, for seventy miles of their railway from St. Jérôme, north-westerly towards Désert, in the province of Quebec, a subsidy of $5,161 per mile, in lieu of the subsidies granted by 46 Vic., chap. 25, and 47 Vic., chap. 8, not exceeding in the whole..... 361,270

79. For a railway from St. Andrew's to the Canadian Pacific Railway at or at any point east of the town of Lachute, in the county of Argenteuil, in the province of Quebec, seven miles, in lieu of the subsidy granted by 47 Vic., chap. 8, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400

80. To the Canada Atlantic Railway Company, for twelve miles of their railway from Clark's Island to Valleyfield, and from Lacolle, in the province of Quebec, to the international boundary, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

81. For a railway from Truro to Newport, in the province of Nova Scotia, forty-nine miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 156,800

82. To the Quebec and Lake St. John Railway Company, for ninety-five miles of their railway, from a point fifty miles north of St. Raymond to Lake St. John, in the province of Quebec, a subsidy not exceeding $1,961 per mile, nor exceeding in the whole (in addition to the subsidy granted by 45 Victoria, chapter 14, and 46 Victoria, chapter 25, of $3,200 per mile)..... 186,295

83. To the Cap Rouge and St. Lawrence Railway Company, for twelve miles of their railway from Lorette via Cap Rouge to Quebec, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

84. For the construction of wharfs and landing stages on the line of the railway from Long Sault to the foot of Lake Temiscamingue, a subsidy of..... 6,000

85. To the Gananoque, Perth and James Bay Railway Company, seventeen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400

86. For a railway from St. Eustache to St. Placide, county of Two Mountains, eighteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

87. For a railway from a point on the Intercolonial Railway through the Stewiacke Valley, on the line which will afford facilities of communication with the Iron Mines, Spring Side, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

88. For a railway from Yamaska to the River St. Francis, in the province of Quebec, ten miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

89. For a railway from Perth Centre station, on the New Brunswick Railway, to a point near Plaister Rock Island, in the province of New Brunswick, twenty-eight miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 89,600

90. For a railway from Fredericton to the village of Prince William, in the province of New Brunswick, twenty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

91. For a railway from a point on the Intercolonial Railway near Newcastle or via Douglastown to a point on the River Miramichi, opposite the town of Chatham, in the province of New Brunswick, six miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $19,200

92. For a railway from a point on the Canadian Pacific Railway to Eganville, in the province of Ontario, twenty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

93. To the Belleville and North Hastings Railway Company, for seven miles of their railway, from the village of Madoc to the junction with the Central Ontario Railway at Eldorado, in the province of Ontario, a subsidy (in addition to the subsidy of $1,500 per mile granted by 48-49 Victoria, chapter 59), not exceeding $1,700 per mile, nor exceeding in the whole..... 11,900

94. To the Napanee, Tamworth and Quebec Railway Company, for eighteen miles of their railway from Tamworth to Tweed, in lieu of the subsidy granted by 48-49 Victoria, chapter 59, a subsidy of..... 70,000

95. To the Albert Railway Company, for their railway from Salisbury to Hopewell, in the province of New Brunswick, which is a feeder to the Intercolonial Railway, in the form of a loan, repayable at such time and secured in such manner as the Governor in Council determines, a subsidy of..... 15,000

"The subsidies hereinbefore mentioned as to be granted to the companies named for that purpose shall be granted to such companies respectively; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies have been granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall be so constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in the agreement to be made in each case by the company to the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council, and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister: Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements, and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council may determine."

By section 2 of this Act authority was given for the grant of a charter by the Governor in Council for the purpose of constructing a railway from Long Sault to the foot of Lake Temiscamingue.

By the Act 50-51 Vic., cap. 24, 1887 *(Assented to 23rd June, 1887).*

96. To the St. Catharines and Niagara Railway Company, for twelve miles of their railway from the city of St. Catharines to the bridge over the Niagara River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 38,400

97. To the Vaudreuil and Prescott Railway Company, for thirty miles of their railway from Vaudreuil towards Hawkesbury, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

98. To the Richmond Hill Junction Railway Company, for five miles of their railway from Richmond Hill Junction, on the Northern Railway of Canada, to Richmond Hill village, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

99. To the Drummond County Railway Company, for thirty miles of their railway from Drummondville towards Nicolet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

100. To the Joggins Railway Company, for one and a quarter miles of their railway extending from the southern end of the portion subsidized by the Act 49 Victoria, chapter 10, to the wharfs, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 4,000

101. To the Moncton and Buctouche Railway Company, for two miles of their railway from the west end of the portion subsidized by the Act 49 Victoria, chapter 10, to Moncton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 6,400

102. To the Beauharnois Junction Railway Company, for thirty miles of their railway from St. Martin's towards St. Anicet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

103. To the Harvey Branch Railway Company, for three miles of their railway from the southern terminus of the Albert Railway to Harvey Bank, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600

104. To the Brantford, Waterloo and Lake Erie Railway Company, for eighteen miles of their railway from the town of Brantford to the village of Hagarsville or the village of Waterford, or some intermediate point on the Canada Southern Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

105. To the Guelph Junction Railway Company, for sixteen miles of their railway from its junction with the Canadian Pacific Railway to the town of Guelph, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200

106. To the Massawippi Railway Company, for ten miles of their railway from a point on the Atlantic and North-western Railway near the village of Magog, to Ayer's Flat station, on the Massawippi Valley Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

107. To the Napanee, Tamworth and Quebec Railway Company, for four miles of their railway from the north end of the section subsidized by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, to Tweed, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 12,800

108. To the Dominion Lime Company, for seven miles of their railway from a point on the Quebec Central Railway, in the township of Dudswell, to the Dudswell Lime Company's quarries, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400

109. To the South Norfolk Railway Company, for seventeen miles of their railway from Port Rowan to the town of Simcoe, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400

110. To the Jacques Cartier Union Railway Company, extending and completing their railway, a subsidy of..... 20,000

111. For a line of railway from Mount Forest to Walkerton, twenty-four miles in length, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 76,800

112. To the Oshawa Railway and Navigation Company, for seven miles of their railway from Port Oshawa towards Raglan, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400

113. To the Saguenay and Lake St. John Railway Company, for thirty miles of their railway from Lake St. John towards Chicoutimi, or from Chicoutimi towards Lake St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

114. To the Great Eastern Railway Company, for thirty miles of their railway from the River St. Francis to the Arthabaska Railway, at St. Grégoire station, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $96,000

115. To the Ontario and Pacific Railway Company, for six miles of their railway from the northern end of the portion subsidized by the Act 47 Victoria, chapter 8, to the town of Perth, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

116. To the Caraquet Railway Company, for seven miles of their railway from Lower Caraquet to Shippegan, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding in the whole.. 32,000

117. To the St. Lawrence and Lower Laurentian and Saguenay Railway Company, for the section of this railway from Grand Piles, on the St. Maurice River, to its junction with the Quebec and Lake St. John Railway, in lieu of the subsidy granted by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, for a line of railway from Grand Piles, on the St. Maurice River, to its junction with the Lake St. John Railway, a distance of about fifty miles, a subsidy of..... 217,600

118. To the St. John Valley and River du Loup Railway Company, for twenty-two miles of their railway from the village of Prince William towards the town of Woodstock, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

119. To the Lake Temiscamingue Railway Company, for four short sections of railway, in all about two miles in length, to overcome the rapids of the Ottawa River, known as "La Mi-Charge," "La Cave," "Les "Erables," and "La Montagne," and for the construction of wharfs and landing stages at these rapids, to connect the Canadian Pacific Railway at Mattawa with Lake Temiscamingue by steamboats, railways and other works (in lieu of a portion two miles in length, out of the eight miles of railway subsidized by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, under which about six miles of railway have already been built from the foot of Long Sault proper to the foot of Lake Temiscamingue, and in lieu also of the subsidy granted by the Act 49 Victoria, chapter 10), a subsidy of..... 12,400

120. To the Carillon and Grenville Railway Company, for twelve miles of their railway from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

121. To the Minudie Branch Railway Company, for five and a half miles of their railway from its junction with the Joggins Railway, near the River Hébert railway bridge, to the village of Minudie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 17,600

122. To the Lake Temiscamingue Colonization and Railway Company, for ten and a half miles of their railway from the Long Sault to Lake Kippewa, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 33,600

123. To the Leamington and St. Clair Railway Company, for two miles of their railway from the north end of the section subsidized by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, to the village of Comber, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 6,400

124. To the Cumberland Railway and Coal Company for fourteen miles of their railway from a point on the Spring Hill and Parrsboro' Railway, near Spring Hill, to a point on the railway between Oxford and New Glasgow, near Oxford village, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 44,800

125. To the Montreal and Champlain Junction Railway Company, a subsidy of..... $ 64,000

126. To the Quebec and Lake St. John Railway Company, for nine miles of their railway, the distance which the previous subsidies granted are short of covering from the city of Quebec to Lake St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 28,800

127. To the Temiscouata Railway Company, for thirty miles of a branch of their railway from Edmundston towards the St. Francis River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 96,000

128. To the Cornwallis Valley Railway Company, for thirteen miles of their railway from Kentville to Kingsport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 41,600

129. To the Nova Scotia Central Railway Company, for thirty-four miles of their railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 108,800

130. To the Tobique Valley Railway Company, for fourteen miles of their railway from Perth Centre station towards Plaister Rock Island, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, for a railway from Perth Centre station, on the New Brunswick Railway, to a point near Plaister Rock Island, a subsidy of..... 89,600

131. For a railway from Woodstock towards Centreville, twenty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 64,000

132. For a railway bridge over the St. Lawrence River, at Coteau Landing on the line of the Canada Atlantic Railway, a subsidy of fifteen per cent on the value of the structure, not to exceed..... 180,000

133. To the Lake Erie, Essex and Detroit River Railway Company, for twenty-seven miles of their railway, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding..... 118,400

"For the purpose of granting corporate powers to persons or companies undertaking the construction of railways or parts of railways, mentioned in the next preceding section, for the construction of which no corporate powers exist at the time of the passing of this Act, the Governor in Council may grant to them, under such corporate name as he shall deem expedient, a charter conferring upon them the franchises, privileges and powers requisite for the said purposes, as the Governor in Council shall deem most useful or appropriate to the said undertaking; and such charter being published in the *Canada Gazette*, with any Order or Orders in Council relating to it, shall have force and effect as if it were an Act of the Parliament of Canada.

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies respectively; the other subsidies, including subsidies granted for railways over a line extending beyond a point to which any company hereinbefore mentioned by name is authorized to construct their railway, shall be granted to such companies as shall be approved by the Governor in Council, as having established, to his satisfaction, their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon completion of the work subsidized, except as regards the subsidy for the bridge over the

St Lawrence River, upon which shall be paid fifteen per cent of the value of work done on monthly progress estimates, certified by the Chief Engineer, and upon the approval of the Minister of Railways and Canals.

"The granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"Notwithstanding anything contained in the Act forty-fifth Victoria, chapter fourteen, or in the Act forty-sixth Victoria, chapter twenty-five, the balances of the sums granted for a railway from St. Raymond to Lake St. John and to the Quebec and Lake St. John Railway Company by the said Acts respectively, which have not yet been paid by the Government, may be paid at any time within one year from the passing of this Act, subject to the conditions in the said Act contained."

By the Act 51 Vic., cap. 3, 1888 (*Assented to 22nd May, 1888*):—

134. To the Ottawa and Parry Sound Railway Company, for 22 miles of their railway from a point on the Canadian Pacific Railway to Eganville, in lieu of the subsidy granted by 49 Victoria, chapter 10, for a railway from a point on the Canadian Pacific Railway to Eganville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 70,400 00

135. To the Nova Scotia Central Railway Company, for 46 miles of their railway, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 147,200 00

136. To the Montreal and Champlain Junction Railway Company, for 3 miles of their railway from the end of the present subsidized section, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 9,600 00

137. To the Massawippi Junction Railway Company, for their railway from a point on the Atlantic and North-west Railway, near the village of Magog, to Ayer's Flat station, on the Massawippi Valley Railway, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy of 32,000 00

138. To the Pontiac Pacific Junction Railway Company, for bridging the several channels of the Ottawa River at Culbute and west thereof, a subsidy of $31,500, to be paid out monthly as the work progresses, upon the certificate of the Chief Engineer of Government railways, in the proportion which the value of the work executed bears to the value of the whole work undertaken, and for three miles of their railway extending from a point three miles east of Pembroke to Pembroke, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $9,600, provided that the entire work subsidized upon this railway shall be completed within four years from the passing of this Act, the subsidy granted by this Act not to exceed in the whole 41,100 00

139. To the Port Arthur, Duluth and Western Railway Company, for 84¾ miles of their railway from Port Arthur towards Gun Flint Lake, in lieu of the subsidies granted by 48-49 Victoria, chapter 59, and 49 Victoria, chapter 10, for the construction of a railway from Murillo Station to Crooked Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 271,200 00

140. To the Quebec and Lake St. John Railway Company, for 30 miles of their railway from Lake St. John towards Chicoutimi, or from Chicoutimi towards Lake St. John, being a transfer made at the request of the Saguenay and Lake St. John Railway Company of the subsidy granted to them by 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000 00

141. To the Temiscouata Railway Company, for 20 miles of their branch railway from Edmundston towards the St. Francis River, in the province of Quebec, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy of..... $100,000 00

142. To the Quebec Central Railway Company, for the construction and completion of a line of railway from St. Francis Station to a point on the Atlantic and North-west Railway near Moose River, 90 miles, in lieu of the balance of the subsidy, unearned, granted by 47 Victoria, chapter 8, a subsidy not exceeding $21,191.54 per annum for twenty years, or a guarantee of a like sum for a like period as interest on the bonds of the company, such annual subsidy for twenty years representing a grant in cash of..... 288,000 00

143. To the Central Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 4,052 tons of used iron rails and fastenings, loaned to the St. Martin's and Upham Railway Company, now forming part of the Central Railway, which rails and fastenings stand in the Public Accounts as an asset for..... ..... 83,612 54

144. To the Elgin, Petitcodiac and Havelock Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 2,201 tons of used iron rails and fastenings loaned to the Elgin Branch Railway, now forming part of the Elgin, Petitcodiac and Havelock Railway, which rails and fastenings stand in the Public Accounts as an asset for 44,252 82

145. To the Kent Northern Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 2,549 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 58,334 27

146. To the Halifax Cotton Company of Nova Scotia, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 233 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 4,335 00

147. To the Steel Company of Canada, in Nova Scotia, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company of 597 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 11,964 66

148. To the Albert Railway Company of New Brunswick, a grant as a subsidy (the section of road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 726 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 14,665 45

149. To the Chatham Branch Railway of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 958 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... $24,439 84

" All the lines, for the construction of which subsidies are granted, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make ; the location also of every such line of railway shall be subject to the approval of the Governor in Council ; and also the said subsidies respectively, payable in cash, shall be payable out of the Consolidated Revenue Fund of Canada by instalments, on the completion to the satisfaction of the Minister of Railways and Canals of each section of the railway of not less than 10 miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon completion of the work subsidized."

By the Act 52 Vic., chap. 3, 1889. *(Assented to 2nd May, 1889)* :—

150. To the Ontario and Pacific Railway Company, for a line of railway from Cornwall to Ottawa, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $172,400 00

151. To the Ottawa and Gatineau Railway Company, for a line of railway from Hull station towards Le Désert, a distance of sixty-two miles, a subsidy not exceeding in the whole..... 320,000 00

152. To the Cap Rouge and St. Lawrence Railway Company, for twelve miles of their railway, from Lorette via Cap Rouge to Quebec, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

153. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, or some other point on the line of the Northern and Pacific Junction Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000 00

154. For a railway from St. Andrew's to the Canadian Pacific Railway, at or at any point east of the town of Lachute, in the county of Argenteuil, in the province of Quebec, seven miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400 00

155. For a railway from Truro, or a point between Truro and Stewiacke, to Newport or to Windsor, in the province of Nova Scotia, forty-nine miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 156,800 00

156. For a line of the Central Railway from the head of Grand Lake to the Intercolonial Railway, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 128,000 00

157. To the Albert Southern Railway Company, the balance remaining unpaid of the subsidy granted by the Act 47th Victoria, chapter 8, not exceeding in the whole 31,771 43

158. To the Baie des Chaleurs Railway Company, the balance remaining unpaid of the subsidy mentioned in the Act 49th Victoria, chapter 17, not exceeding in the whole 244,500 00

159. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the Victoria Branch of the Midland Railway to the village of Bancroft, in the county of Hastings, the balance remaining unpaid of the subsidy granted by the Act 47th Victoria, chapter 8, not exceeding in the whole..... $145,000 00

160. To the Northern and Pacific Junction Railway Company, for a railway from Gravenhurst to Callander, the balance remaining unpaid of the subsidies granted by the Act 45th Victoria, chapter 14, and 46th Victoria, chapter 25, not exceeding in the whole.. 35,000 00

161. For a railway from some point on the Joggins Railway, near the Hébert River, to Young's Mills, in the province of Nova Scotia, a distance of five miles, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 16,000 00

162. To the St. Clair Frontier Tunnel Company, for the construction of a tunnel under the St. Clair River, from a point at or near Sarnia, to a point at or near Port Huron, a subsidy not exceeding in the whole..... 375,000 00

163. To the Pontiac and Renfrew Railway Company, for six miles of their railway from the north bank of the Ottawa River, opposite Braeside, or from Bristol Iron Mines, to the Pontiac Pacific Junction Railway, near the Quyon River, in the province of Quebec, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 19,200 00

164. To the Quebec, Montmorency and Charlevoix Railway Company, for thirty miles of their railway, from the east bank of the St. Charles River, to or near to Cap Tourmente, in the province of Quebec, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 96,000 00

165. To the Fredericton and St. Mary's Bridge Company, for a bridge over the St. John River, at Fredericton, in the province of New Brunswick, a subsidy not exceeding in the whole..... 30,000 00

166. To the Napanee, Tamworth and Quebec Railway Company, for seven miles of their railway, from a point at or near Yarker to a point at or near Harrowsmith, and to a company for three miles of railway from a point at or near Harrowsmith to a point at or near Sydenham, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 32,000 00

167. For a railway from a point near Sicamous, on the Canadian Pacific Railway, to a point on Lake Okanagan for fifty-one miles of such railway, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 163,200 00

168. To the Cornwallis Valley Railway Company, for one mile of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, to Kingsport, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 3,200 00

169. To the Lake Témiscamingue Colonization and Railway Company, for fifteen miles of their railway, from Mattawa station on the Canadian Pacific Railway, towards the Long Sault, or from the Long Sault towards the said Mattawa station, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

170. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from a point on the Canadian Pacific Railway at or near Maskinongé or Louiseville, towards the parish of Saint-Michel des Saints, on the River Mattawin, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

171. To the Kingston, Smith's Falls and Ottawa Railway Company, for twenty miles of their railway, from the city of Kingston towards Smith's Falls, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 64,000 00

172. To the South Ontario Pacific Railway Company, for forty-nine and one-half miles of their railway, from Woodstock to Hamilton, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 158,400 00

173. For a railway from St. Césaire to St. Paul d'Abbotsford, in the province of Quebec, five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000 00

174. To the Great Eastern Railway Company, for twenty miles of their railway, from the east end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Grégoire, towards the Chaudière Junction station on the Intercolonial Railway, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

175. To the Drummond County Railway Company, for four and one-half miles of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, to Ball's Wharf, on the St. Lawrence River, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 14,400 00

176. To the St. Catharines and Niagara Central Railway Company, for twenty miles of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Catharines, towards the city of Hamilton, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

177. To the Quebec and Lake St. John Railway Company, for twenty miles of their railway, from the end of the section of thirty miles from Lake St. John towards Chicoutimi, subsidized by the Act 51 Victoria, chapter 3, towards Chicoutimi, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

178. To the Grand Trunk, Georgian Bay and Lake Erie Railway Company, for fifteen miles of their railway, from the village of Tara or some point between Tara and Hepworth, to the town of Owen Sound, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

179. To the Hereford Railway Company, for fifteen miles of their railway, from Cookshire to a junction with the Quebec Central Railway at Dudswell, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

180. To the Massawippi Junction Railway Company, for fifteen miles of their railway, from Ayer's Flat to Coaticook, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

181. To the Brockville, Westport and Sault Ste. Marie Railway Company, for twenty miles of their railway, from a point at or near Newboro', towards Palmer's Rapids, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 64,000 00

182. To the Thousand Islands Railway Company, for four miles of their railway, from a point near the St. Lawrence River, in Gananoque village, to Gananoque Junction of the Grand Trunk Railway, and for thirteen miles of their railway, from Gananoque Junction of the Grand Trunk Railway to a junction with the Brockville, Westport and Sault Ste. Marie Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400 00

183. For a railway from Cape Tourmente towards Murray Bay, twenty miles, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

184. To the Amherstburg, Lake Shore and Blenheim Railway Company, for twenty miles of their railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

"So much of the subsidy of three thousand two hundred dollars per mile, which under the provisions of the Act forty-ninth Victoria, chapter seventeen, and of this Act, may be paid to the Baie des Chaleurs Railway Company in respect of the thirty miles of their railway, from the seventieth to the hundredth mile, eastward from Metapediac, shall be applicable to the section of the said railway, comprised between the fortieth and the seventieth mile thereof, eastward from Metapediac, instead of to the said first mentioned section of thirty miles, making six thousand four hundred dollars per mile applicable to the secondly mentioned section of thirty miles; but the foregoing provision shall be subject to the condition that the said company undertake to complete the thirty miles of their railway from the seventieth to the hundredth mile eastward from Metapediac within a reasonable time, not to exceed four years, to be fixed by Order in Council, and without any further subsidy from the Government of Canada, and that they deposit with the Minister of Railways and Canals, as security to the Crown that they will well and truly carry out their undertaking, their bonds to the amount of two hundred thousand dollars.

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose, shall be granted to such companies respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized, except as respects the tunnel under the St. Clair River, in which case there shall be paid fifteen per cent of the value of work done on monthly progress estimates, certified by the Chief Engineer, and upon the approval of the Minister of Railways and Canals.

"The granting of such subsidies, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"And for the removal of doubts it is hereby declared and enacted that the provision in the Act passed in the fifty-first year of Her Majesty's reign, and chaptered three, relating to the Pontiac Pacific Junction Railway Company, extended and extends the several subsidies in aid of the said company for four years from the passing of the said Act, that is to say, from the twenty-second day of May, one thousand eight hundred and eighty-eight."

By the Special Act, 52 Vic., cap. 5, 1889 *(Assented to 2nd May, 1889)*:—

185. In order to enable the Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company to complete their railway from Regina to some point on the South Saskatchewan River at or near Saskatoon, and thence northward to Prince Albert, the Governor in Council may enter into a contract with such company for the transport of men, supplies, materials and mails,

for twenty years, and may pay for such services during the said term, eighty thousand dollars per annum in manner following, that is to say:—the sum of fifty thousand dollars to be paid annually on the construction of the railway to a point at or near Saskatoon, such payment to be computed from the date of the completion of the railway to such point; and the remaining thirty thousand dollars annually on the extension of the railway to Prince Albert, such payment to be computed from the date of such last mentioned completion: Provided that if the second portion of the said railway is not built and operated to Prince Albert within two years after the completion of the railway to the South Saskatchewan as aforesaid, the payment of fifty thousand dollars shall cease until the whole railway is finished to Prince Albert.

By the Act 53 Vic., cap. 2, 1890 *(Assented to 16th May, 1890)*:—

186. To the Montreal and Ottawa Railway Company, for thirty miles of their railway, from the western end of the thirty-six miles subsidized by the Act 50-51 Victoria, chapter 24, towards Ottawa, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole ..... $ 96,000

187. To the Waterloo Junction Railway Company, for eleven miles of their railway, from Waterloo to Elmira, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole 35,200

188. To the Northern and Pacific Junction Railway Company, for a railway from Gravenhurst to Callander, the balance remaining unpaid of the subsidies granted by the Acts 45 Victoria, chapter 14, and 46 Victoria, chapter 25, not exceeding in the whole ... 600

189. For a railway from Woodstock via London to Chatham, in the province of Ontario, thirty miles in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, for a railway from Ingersoll via London to Chatham, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 256,000

190. To the St. Catharines and Niagara Railway Company, for fourteen miles of their railway, from the end of the twenty miles subsidized by the Act 52 Victoria, chapter 3, to Hamilton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 44,800

191. To a railway from Ottawa to Morrisburg, fifty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 166,400

192. To the Erie and Huron Railway Company, for twenty-two miles of their railway from Petrolea via Oil Springs to Dresden, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 70,400

193. To the Brockville, Westport and Sault Ste. Marie Railway Company, for a railway from Brockville to Westport, the balance remaining unpaid of the subsidy granted by the Act 48-49 Victoria, chapter 59, not exceeding in the whole 83,000

194. To the Manitoulin and North Shore Railway Company, for thirty miles of their railway from Little Current to the Algoma Branch of the Canadian Pacific Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000

195. To the Port Arthur, Duluth and Western Railway Company, for five miles of their railway, being a branch of the main line of railway to the Kakabeka Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 16,000

196. To the Lake Erie and Detroit River Railway Company, for fifty miles of their railway, on a line to be fixed by the Governor in Council, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 160,000

197. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for sixteen miles of their railway, from Bobcaygeon to the Midland Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 51,200

198. To the Kingston, Smith's Falls and Ottawa Railway Company, for thirty-six miles of their Railway, from the north-east end of the twenty miles subsidized by the Act 52 Victoria, chapter 3, to Smith's Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 115,200

199. To the Ottawa and Parry Sound Railway Company, for thirty miles of their railway, from Eganville to Barry's Bay, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

200. To the Belleville and Lake Nipissing Railway Company, for thirty miles of their railway, from Belleville to Tweed and thence to Bridgewater, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

201. To the Cobourg, Northumberland and Pacific Railway Company, for thirty miles of their railway from Cobourg to the Ontario and Quebec Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

202. To the St. Stephen and Milltown Railway Company, for three and a half miles of their railway, from the town of St. Stephen to the town of Milltown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 11,200

203. To the Woodstock and Centreville Railway Company, for six miles of their railway, from the western end of the twenty miles subsidized by the Act 50-51 Vic., chap. 24, to the International boundary between the province of New Brunswick and the state of Maine, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

204. For a railway from a point at or near Fredericton, via Oromocto and Gagetown, to a point on the New Brunswick Railway west of Westfield station, for thirty miles thereof, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

205. To the Central Railway Company of New Brunswick, for four and a half miles of their railway, the distance which the previous subsidy granted is short of covering, from the head of Grand Lake to the Intercolonial Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 14,400

206. To the Montreal and Western Railway Company, for seventy miles of their railway, from St. Jérôme, north-westerly towards Désert, in the province of Quebec, in lieu of the subsidy granted by the Act 49 Vic., chap. 10, a subsidy not exceeding $5,161 per mile, nor exceeding in the whole..... 361,270

"Provided, that the subsidy hereby granted to the Montreal and Western Company may be paid by instalments on the completion of each section of the railway as follows, that is to say:—

SECTIONS.	Approximate length in miles.
St. Jérôme to Shawbridge	8
Shawbridge to St. Sauveur	4
St. Sauveur to Ste. Adèle	6
Ste. Adèle to Lac à la Fourche	6
Lac à la Fourche to Ste. Agathe	6½
Ste. Agathe to St. Faustin	14
St. Faustin to St. Jovite	7½
St. Jovite to Summit Lake	8
Summit Lake to La Chute aux Iroquois	7
La Chute aux Iroquois towards Désert	3

"Such instalments to be proportionate to the value of the portions so completed in comparison with that of the whole work undertaken, to be established as aforesaid."

207. For seventy-five miles of the railway from Shelburne, in the county of Shelburne, and from Liverpool, in the county of Queen's towards Annapolis, in the province of Nova Scotia, to be so contracted for as to secure the construction to both Shelburne and Liverpool, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 240,000

208. To the Inverness and Richmond Railway Company, for fifty miles of their railway from Port Hawkesbury to Broadcove, a subsidy not exceeding $1,000 per mile, nor exceeding in the whole..... 50,000

209. To the International Railway Company, for a railway from Sherbrooke to the international boundary, the balance remaining unpaid of the subsidy granted by the Act 46 Vic., chapter 25, not exceeding in the whole 3,840

210. For completing the Montreal and Sorel Railway from St. Lambert to Sorel 40,000

211. To the Pontiac Pacific Junction Railway Company, for seven and a half miles of their railway, from Hull to Aylmer, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 24,000

212. To the Montreal and Lake Maskinongé Railway Company, for three and a half miles of their railway, the distance which the subsidy granted by the Act 49 Vic., chapter 10, is short of covering from St. Félix to Lake Maskinongé, in the parish of St. Gabriel, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 10,200

213. To the Great Eastern Railway Company, for a bridge over the Nicolet River, and also a bridge on the St. Francis River, a subsidy of 15 per cent on the value of the structure, not to exceed 37,500

214. To the Drummond County Railway Company, for twenty-four miles of their railway, from Drummondville to Ste. Rosalie, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 76,800

215. To the Great Northern Railway Company, for fifteen miles of their railway, from, at or near Montcalm to the Canadian Pacific Railway, between Joliette and St. Félix de Valois, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

216. To the Lake Temiscamingue Colonization Railway Company, for twenty miles of their railway, from the northern end of the fifteen miles subsidized by the Act 52 Vic., chapter 3, to the Long Sault, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 64,000

217. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from the northern end of the 15 miles subsidized by the Act 52 Victoria, chapter 3, towards the parish of St. Michel des Saints, on the River Mattawa, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000

218. To the St. Lawrence and Adirondack Railway Company, for eighteen miles of their railway, from Valleyfield to Huntingdon, on the Montreal and Champlain Junction Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

219. To the Quebec Central Railway Company, for ninety miles of their railway, from St. Francis Station, on the Quebec Central Railway, to a point on the Atlantic and North-western Railway,

near Moose River, or from a point on the Quebec Central Railway between the Chaudière River and Tring Station, to a point on the International Railway at or near Lake Megantic, in lieu of the subsidy granted by the Act 51 Victoria, chapter 3, a subsidy not exceeding $21,191.54 per annum for twenty years, or a guarantee of a like sum for a like period, as interest on the bonds of the company, such annual subsidy for twenty years representing a grant in cash of $288,000

220. To the Quebec and Lake St. John Railway Company, for a railway bridge over the St. Charles River, to give access to the city of Quebec, a subsidy not to exceed in the whole $30,000; also for twelve miles of their railway from Lorette via Charlesbourg to Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $38,400..... 68,400

221. For a railway from Summerside to Richmond Bay, in the province of Prince Edward Island, three miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600

222. To the Columbia and Kootenay Railway Company, for thirty-five miles of their railway, from the outlet of Kootenay Lake to a point on the Columbia River as near as practicable to the junction of the Kootenay and Columbia Rivers, a subsidy not exceeding $3,200 per mile, nor to exceed in the whole..... 112,000

223. For a railway from a point on the Intercolonial Railway through the Stewiacke Valley on a line which will afford facilities of communication with the Iron Mines, Springside, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

224. For a railway from Fredericton to the village of Prince William in the province of New Brunswick, twenty-two miles, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

225. To the St. John Valley and Rivière du Loup Railway Company, for twenty-two miles of their railway from the village of Prince William towards the town of Woodstock, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

226. To the Témiscouata Railway Company, for sixteen miles of their railway, from the west end of the twenty miles of their branch railway from Edmundston, subsidized by the Act 51 Victoria, chapter 3, towards the St. Francis River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200

227. For a railway from the north end of the fourteen miles for which a subsidy was granted by the Act 50 and 51 Victoria, chapter 24, to the Tobique Valley Railway Company, from Perth Centre towards Plaister Rock Island, eleven miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 35,200

228. To the Orford Mountain Railway Company, for thirty one miles of their railway, between Eastman and Kingsbury, a subsidy not exceeding $3,200 per mile, nor exceedingin the whole 99,200

229. For a railway from Lachine Bank, on a line of the Grand Trunk Railway, to a point at or near Rivière des Prairies, a distance of fifteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose, shall be granted to such companies respectively; the other subsidies,

including subsidies granted for railways over a line extending beyond a point to which any company hereinbefore mentioned by name is authorized to construct its railway, shall be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council,—except the Erie and Huron Railway, which shall be completed within two years from the first day of July next. And they shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specifying an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make. The location, also, of every such line of railway shall be subject to the approval of the Governor in Council. And all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as regards the Erie and Huron Railway Company, upon which payment shall be made only upon the completion of the work—except, also as regards the subsidies to the Inverness and Richmond Railway, which shall be paid on the completion of each ten mile section, in accordance, as nearly as practicable, with the agreement between the company and the municipality of Inverness, and with section four of the Act of the Legislature of Nova Scotia, 1890, intituled: An Act to enable the county of Inverness to borrow money—except, also, as regards the subsidies to the Great Eastern Railway Company for bridges over the Nicolet and St. Francis Rivers, and to the Quebec and Lake St. John Railway for the bridge over the St. Charles River, upon which shall be paid fifteen per cent of the value of work done, on monthly progress estimates certified by the Chief Engineer and upon the approval of the Minister of Railways and Canals—and except also the subsidy granted to the Quebec Central Railway Company, the first annual payment upon which shall be made at the end of twelve months from the date of the Chief Engineer's certificate of the completion of the work, and each subsequent payment at the end of each twelve months thereafter, for the term of twenty years.

"The granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing running powers or traffic arrangements or other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those subsidized, as the Governor in Council determines."

By the special Act 53 Vic., ch. 5, 1890 *(Assented to 16th May, 1890)*:—

230. In order to enable the Calgary and Edmonton Railway Company to construct so much of their railway as reaches from a point on the line of the Canadian Pacific Railway Company within the town of Calgary to a point on the North Saskatchewan River near Edmonton, the Governor in Council may enter into a contract with such company for the transport of men, supplies, materials and mails for twenty years, and may pay for such services during the said term, eighty thousand dollars per annum, in manner following, that is to say: the sum of eighty thousand dollars to be paid annually on the construction of the railway from Calgary to a point on the North Saskatchewan River near Edmonton,—such payment to be computed from the date of the completion of the railway between such points: Provided that the Governor General in Council may order such sums to be paid in semi-annual instalments, and may permit the company to assign the same by way of security for any bonds or securities which may be issued by the company in respect of the company's undertaking.

By 54-55 Victoria, ch. 8, 1891 *(Assented to 30th Sept., 1891)*:—

231. To the Great Northern Railway Company, for a railway from a point at or near New Glasgow or St. Lin to or near to Montcalm, in the province of Quebec, eighteen miles, the balance

remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Act forty-ninth Victoria, chapter ten, nor exceeding in the whole ..... $ 28,100 00

232. To the Quebec and Lake St. John Railway Company, for the railway bridge over the St. Charles River to give access to the city of Quebec, the difference between the amount already paid to the company and the sum of $30,000 mentioned as not to be exceeded by the Act fifty-third Victoria, chapter two, a subsidy not exceeding 5,250 00

233. To the Oshawa Railway Company, for seven miles of their railway from Port Oshawa towards Raglan, in lieu of the subsidy for a like amount granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400 00

234. To the St. Lawrence, Lower Laurentian and Saguenay Railway Company, for the section of their railway from Grand Piles, on the St. Maurice River to its junction with the Quebec and Lake St. John Railway, the balance remaining unpaid of the subsidy granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 92,784 00

235. To the Great Eastern Railway Company, for thirty-miles of their railway, from the River St. Francis to the Arthabaska Railway at St. Grégoire station, the balance remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 79,700 00

236. To the South Ontario Pacific Railway Company, for forty-nine and one-half miles of their railway from Woodstock to Hamilton, in the province of Ontario, in lieu of the subsidy for a like amount granted by the Act fifty-second Victoria, chapter three, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 158,400 00

237. To the Montreal and Ottawa Railway Company (formerly the Vaudreuil and Prescott Railway Company), for thirty miles of their railway from Vaudreuil towards Hawkesbury, the balance remaining unpaid of the subsidy granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 46,040 00

238. To the Tobique Valley Railway Company, for fourteen miles of their railway from Perth Centre station towards Plaister Rock Island, in lieu of the subsidy for a like amount granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, a subsidy not exceeding $6,400 per mile, nor exceeding in the whole 89,600 00

239. To the Kingston, Smith's Falls and Ottawa Railway Company for fifty-six miles of their railway from the city of Kingston to Smith's Falls, in lieu of the subsidies, not to exceed $179,200, granted by the Acts fifty-second Victoria, chapter three, and fifty-third Victoria, chapter two, a subsidy not exceeding $12,534 per annum, to be paid in semi-annual instalments of $6,267 each, for twenty years, which represents a grant in cash of 179,200 00

"Provided, that upon the completion of twenty-eight miles of the said railway a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole fifty-six miles; Provided also, that the company may deposit with the Minister of Finance and Receiver General a sum not exceeding $1,170,000, in consideration whereof there shall be paid to the company, for twenty years, a semi-annual annuity calculated on a basis of three and one-half per cent on the amount so deposited; Provided further, that the Governor in Council may permit the company to assign the said subsidy and annuity to trustees by way of security for any bonds or securities which may be issued by the company in respect of their undertaking."

240. To the Brockville, Westport and Sault Ste. Marie Railway Company, for twenty miles of their railway, from a point at or near Newboro' towards Palmer's Rapids, in the province of Ontario, in lieu of a subsidy for a like amount granted by the Act fifty-second Victoria, chapter three, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

"Provided that the subsidy hereby granted to the Brockville, Westport and Sault Ste. Marie Railway Company may be paid by instalments, on the completion of each section of the railway as follows, that is to say:—

Sections.	Length in miles.
From, at or near Newboro' to Westport.....	4
From Westport towards Palmers Rapids.....	16

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council: and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also of every such line of railway, shall be subject to the approval of the Governor in Council; and all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to the subsidy granted to the Kingston, Smith's Falls and Ottawa Railway Company, the first semi-annual payment upon which shall be made at the end of six months from the date of the Chief Engineer's certificate of the completion of twenty-eight miles of the railway, and each subsequent payment at the end of each six months thereafter, for the term of twenty years,—except also as to the Quebec and Lake St. John Railway Company, the subsidy to which shall be paid upon the completion of the work,—except also as to the Brockville, Westport and Sault Ste. Marie Railway Company, the subsidy to which shall be paid as follows: on the completion of that portion of the said road from, at or near Newboro' to Westport, a distance of four miles, the sum of twelve thousand eight hundred dollars, and on the completion of the remaining sixteen miles from Westport towards Palmer's Rapids, the sum of fifty-one thousand two hundred dollars.

"Within one month after the commencement of each session of Parliament, whilst any of the said moneys are being paid out, there shall be laid before Parliament a statement showing all payments of such moneys during the then next preceding year, the names of the respective persons to whom such payments have been made, and the amounts paid them respectively, together with the engineer's report upon which pay-

ments have been recommended, and copies of all contracts between the Government and the company under which the said subsidies are authorized to be paid.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running power or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

By the Act 55-56 Victoria, chap. 5, 1892 *(Assented to 9th July, 1892)* :—

241. To the Lake Erie and Detroit River Railway Company, for fifty-eight miles of their railway from a point at or near Cedar Creek to the town of Ridgetown, in lieu of the subsidies granted to the Lake Erie and Detroit River Railway Company by the Act 53 Victoria, chapter 2, and to the Amherstburg, Lake Shore and Blenheim Railway Company by the Act 52 Victoria, ch. 3. $224,000 00

242. To the Ottawa, Arnprior and Parry Sound Railway Company, for fifty-five miles of their railway from Barry's Bay towards the Northern Pacific Junction Railway, a subsidy not exceeding $6,400 per mile on the first twenty-seven and a half miles out from Barry's Bay, and not exceeding $3,200 per mile on the second twenty-seven and a half miles, nor exceeding in the whole..... 264,000 00

243. To the Canadian Pacific Railway Company or to the Columbia and Kootenay Railway and Navigation Company, for a railway from a point on the Canadian Pacific Railway at or near Revelstoke to the head of Arrow Lake, for twenty-five miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000 00

244. To the Tobique Valley Railway Company, for a railway from the north end of the eleven miles for which a subsidy was granted by the Act 53 Victoria, chapter 2, to Plaister Rock Island, for 3 miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600 00

245. To the Monfort Colonization Railway Company, for twenty-one miles of their railway from Lachute, St. Jérôme or a point at or near St. Sauveur, on the line of the Montreal and Western Railway, to Monfort and westward, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200 00

246. To the Ontario, Belmont and Northern Railway Company, for ten miles of their railway from the Belmont iron mines to the Canadian Pacific Railway and the Central Ontario Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

247. To the Montreal and Champlain Junction Railway Company, the balance remaining unpaid of the subsidies granted by the Acts 50-51 Victoria, chapter 24, and 51 Victoria, chapter 3, a subsidy of..... 15,100 00

248. To the Buctouche and Moncton Railway Company, for thirty-two miles of their railway from Moncton to Buctouche, the balance remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Acts 49 Victoria, chapter 10, and 50-51 Victoria, chapter 24, not exceeding in the whole..... 35,480 00

249. To the Cobourg, Northumberland and Pacific Railway Company, for nineteen miles of their railway from Cobourg to the Ontario and Quebec Railway (in addition to the subsidy granted by the Act 53 Victoria, chapter 2), a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 60,800 00

250. For a railway from the parish of St. Rémi, in the county of Napierville, to St. Cyprien in the said county, for twelve miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 38,400 00

251. To the Inverness and Richmond Railway Company (or any other company undertaking the work), for twenty-five miles of their railway from a point on the Cape Breton Railway, at or near Orangedale, to Broadcove, a subsidy not exceeding $3,200 per mile, in lieu of the subsidy of $50,000 granted to the said railway company by 53 Victoria, chapter 2, and on the same conditions, not exceeding in the whole 80,000 00

252. To the Nicola Valley Railway Company, for twenty-five miles of their railway from a point on the Canadian Pacific Railway at or near Spence's Bridge towards Nicola Lake 80,000 00

253. To the Lotbinière and Megantic Railway Company, for fifteen miles of their railway from a point at or near St. Jean Deschaillons towards Glen Lloyd, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000 00

254. To the Stewiacke and Lansdowne Railway Company, for a railway from a point on the Intercolonial Railway, through the Stewiacke Valley, on a line which will afford facilities of communication with the iron mines at Springside, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 80,000 00

255. To the Philipsburg Junction Railway and Quarry Company, for six and seven-hundredths miles of their railway from Stanbridge Station to Philipsburg, in the county of Missisquoi, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 21,600 00

256. To the Kingston, Napanee and Western Railway Company, for three miles of their railway from a point at or near Harrowsmith to a point at or near Sydenham, in lieu of the subsidy granted for this section of road by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 9,600 00

257. For a railway from Cape Tourmente towards Murray Bay, in the province of Quebec, twenty miles, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 64,000 00

258. To the Stewiacke and Lansdowne Railway Company, for a railway from Truro, or a point between Truro and Stewiacke, to Newport or to Windsor, in the province of Nova Scotia, for forty-nine miles of such railway, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 156,800 00

259. To the Restigouche and Victoria Railway Company, for fifteen miles of their railway from Campbelton towards Grand Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000 00

260. For a railway from St. Johns to Ste. Rosalie, thirty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 102,400 00

261. For a railway from St. Placide to St. Andrew's, eight miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 25,600 00

262. For a railway to complete the connection between Sydney and Louisburg, in the county of Cape Breton, for twenty-eight miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 89,600 00

263. To the Belleville and Lake Nipissing Railway Company, for thirty miles of their railway from Belleville to Tweed and thence to Bridgewater, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 96,000 00

264. To the Kingston, Smith's Falls and Ottawa Railway Company, for fifty-six miles of their railway from the city of Kingston to Smith's Falls, in lieu of the subsidies, not to exceed $179,200, granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy calculated on a basis of three and a half per cent on the amount of such subsidies so granted, to be paid in semi-annual instalments for such period not exceeding twenty-one years, as the company may elect, which represents a grant in cash of..... 179,200 00

" Provided, that upon the completion of twenty-eight miles of the said railway a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole fifty-six miles : Provided also, that the company may deposit with the Minister of Finance and Receiver General, a sum not exceeding $1,170,000, in consideration whereof there shall be paid to the company for such period not exceeding twenty years as the company may elect, a semi-annual annuity calculated on a basis of three and a half per cent on the amount so deposited. Provided further, that the Governor in Council may permit the company to assign the said subsidy and annuity to trustees by way of security for any bonds or securities which may be issued by the company in respect of their undertaking."

265. To the St. Catharines and Niagara Central Railway Company, for thirty-four miles of their railway from the city of St. Catharines to the city of Hamilton, in lieu of the subsidies, not to exceed $108,000, granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy calculated on a basis of three and a half per cent on the amount of the said subsidies, to be paid in semi-annual instalments for such period, not exceeding twenty years, as the company may elect, representing a grant in cash of $108,000 : Provided that, upon the completion of ten miles of said railway, a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole thirty-four miles. Provided also, that the company may deposit with the Minister of Finance and Receiver General a sum not exceeding $400,000, in consideration whereof there shall be paid by the Government to the company, for such period not exceeding twenty years, as the company may elect, a semi-annual annuity, calculated on a basis of three and a half per cent on the amount so deposited, or a guarantee of a like sum, as interest on the bonds of the company : Provided further, that the company, with the approval of the Governor in Council, may assign the said subsidy and annuity to trustees by way of security for principal, or interest of any bonds or securities which may be issued by the company in respect of their undertaking, and the subsidy last above mentioned to the St. Catharines and Niagara Central Railway Company shall be paid in instalments, the first semi-annual payment upon which shall be made at the end of the six months from the date of the Chief Engineer's certificate of the completion of the first ten miles of railway, and each subsequent payment at the end of six months thereafter, for the term of twenty years or less. It is a condition of this subsidy that the sum not exceeding $400,000 above mentioned shall be deposited with the Finance Minister before January 1st, 1893.

266. To the Woodstock and Centreville Railway Company, for a railway from Woodstock towards Centreville, twenty miles, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

267. To the Brockville, Westport and Sault Ste. Marie Railway Company, for the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding $3,200 per mile, and also for the balance remaining unpaid of the subsidy granted by the Act 53 Victoria, chapter 2, nor exceeding in the whole..... 96,800 00

268. To the New Glasgow Iron, Coal and Railway Company, for a railway from Eureka Junction on the Intercolonial Railway to a point at or near Sunnybrae, including a branch line to the charcoal iron furnace at Bridgeville, for twelve and a half miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 40,000 00

269. To the Thousand Island Railway Company, for an extension of their railway to connect with the Brockville, Westport and Sault Ste. Marie Railway, the Kingston, Napanee and Western Railway, the Kingston, Smith's Falls and Ottawa Railway, or the waters of the Rideau Canal, and an extension across the mouth of the Gananoque River, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 44,000 00

Payable, $14,000 on the completion of the last named or southern extension, and the balance of said subsidy, being $30,000, on the completion of the first named or northern extension of their railway.

270. To the Manitoulin and North Shore Railway Company, for thirty miles of their railway from Little Current to the Algoma Branch of the Canadian Pacific Railway, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $96,000 00

271. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for sixteen miles of their railway from the end of the line subsidized by the Act 53 Victoria, chapter 2, at the junction with the Midland Railway, to Pontypool, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200 00

272. For seventy-five miles of the railway from Sand Point, Shelburne Harbour, in Nova Scotia, to Annapolis Royal, in the county of Annapolis and to a junction at or near New Germany on the Nova Scotia Central Railway, with a view to future construction to Liverpool, in lieu of the subsidy of a like amount granted by the Act 53 Victoria, chapter 2, for the same length of railway from Shelburne and from Liverpool, towards Annapolis, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 240,000 00

273. To the Kingston, Napanee and Western Railway Company, for twenty miles of their railway, being extensions or branches in the counties of Peterborough, Hastings, Addington, Frontenac or Leeds, towards iron deposits, a subsidy not exceeding $3,200 per mile, payable in instalments regulated by the length of each of the said extensions, additions or branches, the subsidy not exceeding in the whole..... 64,000 00

274. To the St. John Valley and Rivière du Loup Railway Company, for ten miles of their railway from the north end of the line subsidized by the Act 53 Victoria, chapter 2, towards the town of Woodstock, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

275. To the Cobourg, Northumberland and Pacific Railway Company, for thirty miles of their railway from Cobourg to the Ontario and Quebec Railway, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 96,000 00

276. To the Ottawa, Arnprior and Parry Sound Railway Company, for thirty miles of their railway, from Eganville to Barry's Bay, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000 00

277. To the Ottawa, Arnprior and Parry Sound Railway Company, for twenty-two miles of their railway from a point on the Canadian Pacific Railway to Eganville, in lieu of the subsidy granted by the Act 51 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 70,400 00

278. To the Lake Témiscamingue Colonization Railway Company, for thirty-five miles of their railway from Mattawa to the Long Sault, in lieu of the subsidies granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 112,000 00

279. To the Témiscouata Railway Company, for twelve miles of their railway from the north end of the section of the St. François Branch subsidized by the Act 51 Victoria, chapter 3, being the first twelve miles on the section subsidized by the Act 53 Victoria, chapter 2, a subsidy not exceeding $1,800 per mile, in addition to the subsidy already granted, and not exceeding in the whole 21,600 00

280. To the Tilsonburg, Lake Erie and Pacific Railway Company, for sixteen miles of their railway from Port Burwell to Tilsonburg, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 51,200 00

281. To the Woodstock and Centreville Railway Company, for six miles of their railway from the west end of their twenty miles subsidized by the Act 50-51 Victoria, chapter 24, to the international boundary between the province of New Brunswick and the state of Maine, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 19,200 00

282. To the Lake Témiscamingue Colonization Railway Company, for 15 miles of their railway from the Long Sault to the crossing of the Kippewa River, a subsidy not exceeding $3,200 per mile—and a subsidy of fifteen per cent on the value of a wooden truss bridge over the Ottawa River near Mattawa, not exceeding $15,000,—nor exceeding in the whole 63,000 00

283. To the Goderich and Wingham Railway Company, for thirty-one miles of their railway from Goderich to Wingham, via Port Albert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 99,200 00

284. To the Joliette and St. Jean de Matha Railway Company, for eight miles of their railway from St. Félix de Valois to St. Jean de Matha, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 25,600 00

285. To the Bracebridge and Baysville Railway Company, for fifteen miles of their railway from Bracebridge towards Baysville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 48,000 00

286. To the Nipissing and James Bay Railway Company, for twenty-five miles of their railway from, at or near North Bay station on

the Canadian Pacific Railway towards James Bay, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 80,000 00

287. For a railway from a point on the Intercolonial Railway between Ste. Flavie and Little Métis station to Matane, for fifty miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 160,000 00

288. To the Ontario and Pacific Railway Company, for fifty-three and eighty-seven hundredths miles of their railway from Cornwall to Ottawa, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 172,400 00

289. For a railway from a point on the line of the Canadian Pacific Railway on the Isle Jésus, in the county of Laval, towards St. Eustache, for twelve miles of such railway, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, to the Carillon and Grenville Railway Company, for twelve miles of their railway, from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

290. For a railway from St. Eustache to St. Placide, in the county of Two Mountains, for eighteen miles of such railway, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600 00

291. To the Port Arthur, Duluth and Western Railway Company, the balance remaining unpaid of the subsidy granted by the Act 51 Victoria, chapter 3, not exceeding, with the amount already paid, $3,200 per mile, nor exceeding in the whole..... 114,125 00

292. To the Drummond County Railway Company for four and six-tenths miles of their railway from Bull's Wharf, on the St. Lawrence River, near Nicolet, to Ste. Rosalie Junction, an excess of distance by the constructed line over the subsidies heretofore voted for a railway between the said points, $3,200 per mile, not exceeding in the whole..... 14,720 00

293. To the St. Lawrence and Adirondack Railway Company, for five and forty-two hundredths miles of their railway, from Huntingdon towards the international boundary, which, with the distance between Valleyfield and Huntingdon, twelve and fifty-eight hundredths miles, makes up the distance of eighteen miles named in the 53 Vic., chap. 2, granting a subsidy to this company, and for five and forty-hundredths miles from the east end of the eighteen miles referred to to the international boundary, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 25,024 00

" The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively ; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make ; the location also of every such line of railway shall be subject to the approval of the Governor in Council ; and all the said subsidies respectively shall be payable out of the Consolidated

Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as to subsidies with respect to which it is hereinbefore otherwise provided, and except also as to the subsidy granted to the Kingston, Smith's Falls and Ottawa Railway Company, and the subsidy granted to the St. Catharines and Niagara Central Railway Company, the first semi-annual payments upon both of which shall be made at the end of six months from the date of the Chief Engineer's certificate of the completion of their railways respectively, and each subsequent payment at the end of each six months thereafter, for the term of twenty years or less.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines."

294. Notwithstanding the expiration of the time limited by the Act 47 Victoria, chapter 8, and by the contract entered into with the Pontiac Pacific Junction Railway Company, the Governor in council may pay the balance remaining unpaid of the subsidy granted by the said Act to the said company, according as it becomes due and payable in accordance with the said contract, and subject to the terms and conditions applicable to the said subsidy under the terms of the said Act.

295. Notwithstanding the expiration of the time limited by the Act 52 Victoria, chapter 3, and by the contract entered into with the Quebec and Lake St. John Railway Company, the Governor in Council may pay the balance remaining unpaid of the subsidy granted by the said Act to the said company, according as it becomes due and payable in accordance with the said contract, and subject to the terms and conditions applicable to the said subsidy under the terms of the said Act; and notwithstanding anything contained in the Act 50-51 Victoria, chapter 24, the Governor in Council may also pay to the said company the balance remaining unpaid of the subsidy granted to the company by the said Act, amounting to $12,800, on the four miles of their road from the north end of the main line subsidized towards Roberval.

By the Act 56 Vic., chap. 2, 1893 (*Assented to 1st April, 1893*):—

296. To the Great Eastern Railway Company, for twenty miles of their railway, from the east end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Grégoire, towards the Chaudière Junction station on the Intercolonial Railway, in the province of Quebec, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 64,000 00

297. To the United Counties Railway Company, for thirty-two miles of their railway, from a point at or near the town of Iberville to St. Hyacinthe, and thence towards Sorel, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, for a railway from St. Johns to Ste. Rosalie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400 00

298. To the Ontario, Belmont and Northern Railway Company, for ten miles of their railway, divided into two sections: first, from the Belmont Iron Mines to Marmora village; second, from Marmora village to the junction with the Ontario Central Railway, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

299. To the Central Ontario Railway Company, for twenty miles of their railway, from Coe Hill or Gilmore, or some point between

Coe Hill and Gilmore, to Bancroft, via L'Amable, or as near thereto as practicable, in lieu of the subsidy granted by the Act 48-49 Victoria, chapter 59, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 64,000 00

300. To the Quebec and Lake St. John Railway Company, for thirty miles of their railway, from Lake St. John towards Chicoutimi, the balance remaining unpaid of the subsidy granted by the Act 51 Victoria, chapter 3, not exceeding in the whole..... 81,040 00

301. To the Irondale, Bancroft and Ottawa Railway Company, for fifty miles of their railway, from the Victoria branch of the Midland Railway to the village of Bancroft, in the county of Hastings, the balance remaining unpaid of the subsidy granted by the Act 47 Victoria, chapter 8, and again granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 145,000 00

302. To the Beauharnois Junction Railway Company, for thirty miles of their railway, from Ste. Martine towards St. Anicet, the balance remaining unpaid of the subsidy granted by the Act 50-51 Victoria, chapter 24, not exceeding in the whole..... 3,500 00

303. To the St. Stephen and Milltown Railway Company, for three and a half miles of their railway, from the town of St. Stephen to the town of Milltown, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 11,200 00

304. To the Quebec, Montmorency and Charlevoix Railway Company, for thirty miles of their railway, from the east bank of the River St. Charles, to or near to Cape Tourmente, in the province of Quebec, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole.. 30,400 00

305. To the Ottawa and Gatineau Valley Railway Company, for sixty-two miles of their railway, from Hull station towards Le Désert, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 89,248 00

306. To the Grand Trunk, Georgian Bay and Lake Erie Railway Company, for fifteen miles of their railway, from the village of Tara, or some point between Tara and Hepworth, to the town of Owen Sound, in the province of Ontario, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

307. To the Nova Scotia Central Railway Company (or to such person or persons or company as in the opinion of the Minister or acting Minister of Justice are entitled to the same) for eighty miles of their railway, from Lunenburg, on the east coast of Nova Scotia, westward to a point in the district of New Germany, together with a spur about three-fourths mile long to Bridgewater railway wharf, and from a point thirty-three and a half miles from Lunenburg and running to Middleton on the Windsor and Annapolis Railway, of unpaid subsidies granted by the Acts 50-51 Victoria, chapter 24, and 51 Victoria, chapter 3, an amount not exceeding in the whole..... 4,500 00

308. To the Great Northern Railway Company, for eighteen miles of their railway, from a point at or near New Glasgow or St. Lin, to or near to Montcalm, in the province of Quebec, the balance remaining unpaid of the subsidy granted by the Act 54-55 Victoria, chapter 8, not exceeding in the whole..... 25,600 00

309. To the Great Northern Railway Company, for fifteen miles of their railway, from, at or near Montcalm to the Canadian Pacific

Railway between Joliette and St. Félix de Valois, in lieu of the subsidy granted by the Act 53 Victoria, chap. 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000 00

310. To the Montfort Colonization Railway Company, for twenty-one miles of their three-feet gauge railway from Lachute, St. Jérôme, or a point at or near St. Sauveur, on the line of the Montreal and Western Railway, to Montfort and westward, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200 00

311. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from a point on the Canadian Pacific Railway at or near Maskinongé or Louiseville, towards the parish of St. Michel des Saints, on the river Mattawa, in the province of Quebec, and for fifteen miles of their railway from the north end of the fifteen miles above referred to, towards the parish of St. Michel des Saints on the river Mattawa, in the province of Quebec, in lieu of the subsidies granted by the Acts 52 Victoria, chap. 3, and 53 Victoria, chap. 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

312. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, or some other point on the Northern Pacific Junction Railway, in the province of Ontario, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 97,600 00

313. To the Jacques Cartier Union Railway Company, for extending and completing their railway, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, a subsidy of..... 20,000 00

314 To the Oshawa Railway Company, for seven miles of their railway and branches as follows: from Port Oshawa to a point at or near Edmondson's Falls mill site, near Mill Street, in the town of Oshawa (this portion being known as the "Lake" section of the said railway); thence to a point at or near the town hall in the town of Oshawa, and thence to the Oshawa station of the Grand Trunk Railway Company of Canada (this portion being known as the "Town" or "Northern" section of the said railway)—in lieu of the subsidy granted by the Act 54-55 Victoria, chapter 8, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400 00

"All the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"All the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed

in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as follows :—

"(*a.*) The subsidy to the Ontario, Belmont and Ottawa Railway Company, which shall be paid as follows : on the completion of the first section, an instalment proportionate to the value of the said section in comparison with that of the ten miles hereby subsidized, to be established as aforesaid, and the balance of the said subsidy on the completion of the second section ;

"(*b.*) The subsidy to the Oshawa Railway Company, which shall be paid as follows : on the completion of the "Town" or "Northern" section, an instalment proportionate to the value of the said section in comparison with that of the seven miles hereby subsidized, to be established as aforesaid, and the balance of the said subsidy, on the completion of the "Lake" section of the said railway."

By the Act 57-58 Vic., cap. 4, 1894. *(Assented to, 23rd July, 1894)* :—

315. To the Bracebridge and Baysville Railway Company, for fifteen miles of their railway from Bracebridge towards Baysville, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000

316. To the Brockville, Westport and Sault Ste. Marie Railway, the balance remaining unpaid of the subsidy granted by chapter 3 of 1889, not exceeding $3,200 per mile, and also the balance remaining unpaid of the subsidy granted by chapter 2 of 1890, which was re-granted by chapter 5 of 1892 ; the whole not exceeding 86,800

317. To the Tilsonburg, Lake Erie and Pacific Railway Company, for sixteen miles of their railway, from Port Burwell to Tilsonburg, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 51,200

318. To the Brantford, Waterloo and Lake Erie Railway Company, for eighteen miles of their railway, from the town of Brantford to the village of Hagarsville or the village of Waterford, or some intermediate point on the Canada Southern Railway, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, not exceeding $3,200 per mile, nor exceeding in the whole 4,790

319. To the St. Catharines and Niagara Central Railway Company, for 34 miles of their railway from the city of St. Catharines to the city of Hamilton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 108,800

320. To the Montreal and Ottawa Railway Company (formerly the Vaudreuil and Prescott Railway Company), for thirty miles of their railway from Vaudreuil towards Hawkesbury, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887 ; and for 30 miles of their railway from the western end of the 30 miles first mentioned towards Ottawa, the balance remaining unpaid of the subsidy granted by chapter 2 of 1890, not exceeding $3,200 per mile ; the whole not exceeding..... 118,400

321 Notwithstanding the expiration of the time limited by chapter 2 of 1890, and by the contract entered into with the Quebec Central Railway Company, and notwithstanding anything otherwise in the said chapter 2 contained, the Governor in Council may pay the subsidy granted by the said chapter to the said company at the present worth of the twenty annual payments mentioned in the said chapter (interest computed at four per cent), for and upon the completion of its railway extending from a point between the Chaudière River and Tring Station to a point on the International Railway at or near Lake Megantic, and upon the inspection and acceptance of the same by the Chief Engineer of Railways and Canals, the sum in all of..... 288,000

322. To the Philipsburg Junction Railway and Quarry Company, for $\frac{67}{100}$ mile of their railway from Stanbridge Station to Philipsburg, in the county of Missisquoi and a branch to Missisquoi Bay, the balance remaining unpaid of the subsidy granted by chapter 5 of 1892, not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 2,912

323. To the Joliette and St. Jean de Matha Railway Company, for 8 miles of their railway from St. Félix de Valois to St. Jean de Matha, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 23,600

324. To the Lake Temiscamingue Colonization Railway Company, for their railway from Mattawa to the foot of the Kippewa Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $160,000,—also 15 per cent on the value of a wooden truss bridge over the Ottawa River near Mattawa, not to exceed $15,000 in all, in lieu of the subsidies granted by chapter 5 of 1892,—also the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, for their railway from Long Sault to Lake Kippewa, a subsidy not exceeding $3,200 per mile of railway and 15 per cent on the value of the bridges,—also, a sum of $1,750 additional per mile on their said railway from Mattawa to the foot of the Kippewa Lake; the whole not exceeding 274,940

325. For a railway from St. Placide to St. Andrews, 8 miles, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 25,600

326. For a railway from St. Eustache to St. Placide, in the county of Two Mountains, for 18 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 57,600

327. For a railway from a point on the line of the Canadian Pacific Railway on Isle Jésus, in the county of Laval, towards St. Eustache, for 12 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, to the Carillon and Grenville Railway Company, for 12 miles of their railway, from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

328. For a railway from the parish of St. Rémi, in the county of Napierville, to St. Cyprien, in the said county, for 12 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

329. To the Pontiac Pacific Junction Railway Company, for bridging the several channels of the Ottawa River at Culbute and west thereof, a subsidy of $31,500, to be paid out monthly as the work progresses, upon the certificate of the chief engineer of government railways, in the proportion which the value of the work executed bears to the value of the whole work undertaken; and for 3 miles of their railway extending from a point 3 miles east of Pembroke to Pembroke, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $9,600, in lieu of the subsidy granted by chapter 3 of 1888; provided that the entire work subsidized upon this railway shall be completed within 4 years from the passing of this Act; the subsidy granted by this Act not to exceed in the whole 41,100

330. To the Pontiac Pacific Junction Railway Company, for the construction or acquisition of 7½ miles of railway, from Hull to Aylmer, in lieu of the subsidy granted by chapter 2 of 1890, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $ 24,000

331. To the Pontiac Pacific Junction Railway Company, for 85 miles of their railway from Aylmer to Pembroke, the balance remaining unpaid of the subsidy granted by chapter 8 of 1884, less the subsidy granted for the line from Hull to Aylmer, provided the Ottawa River is crossed at some point not east of Lapasse, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 73,172

332. To the Harvey Branch Railway Company, for 3 miles of their railway from the southern terminus of the Albert Railway to Harvey Bank, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, not exceeding $3,200 per mile, nor exceeding in the whole..... 4,046

333. For a railway from a point on the Intercolonial Railway near Newcastle via Douglastown, to a point on the River Miramichi opposite the town of Chatham, in the province of New Brunswick, 6 miles, in lieu of the subsidy granted by chapter 10 of 1886, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

334. For a railway from some point on the Joggins Railway, near the Hebert River, to Young's Mills, in the province of Nova Scotia, a distance of 5 miles, in lieu of the subsidy granted by chapter 3 of 1889, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

335. To the Woodstock and Centreville Railway Company, for a railway from Woodstock to the international boundary between the province of New Brunswick and the state of Maine, 26 miles, in lieu of the subsidies granted by chapter 24 of 1887 and chapter 2 of 1890 a subsidy not exceeding $3,200 per mile nor exceeding in the whole..... 83,200

336. For 90 miles of the railway from Newport or Windsor to Truro, or to a point between Truro and Stewiacke, and from a point on the said railway to a point at or near Eastville, and from Eastville through the valley of the Musquodoboit River towards a point on the proposed Dartmouth branch of the Intercolonial, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile; and also for a railway bridge over the Shubenacadie River on the line of the said railway, a subsidy of 15 per cent on the value of the structure; the whole not exceeding..... 300,000

337. To the Nipissing and James Bay Railway Company, for 25 miles of their railway from, at or near North Bay Station on the Canadian Pacific Railway towards James Bay, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile; also for 43 miles of their railway from North Bay towards Lake Tamagaming, a subsidy not exceeding $3,200 per mile; the whole not exceeding..... 217,000

338. To the Lotbinière and Mégantic Railway Company, for 15 miles of their railway, in addition to the 15 miles already subsidized and built, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

339. To the Drummond County Railway Company, for 30 miles of their railway from St. Leonard northerly towards a junction with the Intercolonial Railway at Chaudière Junction, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

340. For a railway from Lime Ridge, in the county of Wolfe, in the province of Quebec, northerly through the county of Wolfe and into the county of Megantic, a distance not exceeding 50 miles from Lime Ridge, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $160,000

341. To the Strathroy and Western Counties Railway Company, for 25 miles of their railway from St. Thomas through the counties of Elgin and Middlesex, towards Forest Station or Park Hill, on the Grand Trunk Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

342. To the Parry Sound Colonization Railway Company, for 20 miles of their railway east from Parry Sound, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

343. To the Manitoulin and North Shore Railway Company, for 10 miles of their railway from Little Current to Nelson, on the Algoma Branch of the Canadian Pacific Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 32,000

344. To the United Counties Railway Company for 32 miles of their railway from Iberville to Sorel, in addition to the 32 miles already subsidized, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400

345. To the Joliette and St. Jean de Matha Railway Company, for 12 miles of their railway from St. Jean de Matha to Ste. Emelie de L'Energie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

346. To the Great Northern Railway Company, for 22 miles of their railway, from the eastern end of the 15 miles subsidized by chapter 2 of 1893 to a point between Joliette and St. Félix de Valois, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

347. To the Quebec and Lake St. John Railway Company, for 2 miles of the Chicoutimi branch of their railway, from the east end of the 50 miles already subsidized and built eastward to deep water at Chicoutimi, a subsidy not exceeding $3,200 per mile; also for 12 miles from the 52nd mile on the Chicoutimi branch to Ha Ha Bay, a subsidy not exceeding $3,200 per mile; the whole not exceeding..... 44,800

348. To the Pontiac and Ottawa Railway Company, for 23 miles of their railway from the point of divergence from the Pontiac Railway to Ferguson's Point, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 73,600

349. To the Ottawa and Gatineau Valley Railway Company, for 20 miles of their railway from the eastern end of the 62 miles already subsidized towards Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

350. To the Canada Eastern Railway Company for 6 miles of their railway from the town of Chatham to Black Brook, a subsidy not exceeding $3,200 per mile; also for 4 miles of their railway for a branch to the village of Nelson, a subsidy not exceeding $3,200 per mile; the whole not exceeding..... 32,000

351. For a railway from Cross Creek Station, on the Canada Eastern Railway to Stanley village, in the county of York, in the province of New Brunswick, 6 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

352. To the Restigouche and Victoria Railway Company, for 20 miles of their railway from the western end of the 15 miles subsidized by chapter 5 of 1892, towards Grand Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

353. To the Central Railway Company of New Brunswick, for 15 miles of their railway from Chipman station to the Newcastle coal fields, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000

354. To the Tobique Valley Railway Company, for 15 miles of their railway from the present terminus at Plaister Rock easterly, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

355. Towards the restoration or renewal of the railway bridge on the South-eastern Railway over the Yamaska River at Yamaska, a subsidy equal to one-third of the actual cost of the renewal of the bridge, but the grant not to exceed in the whole..... 50,000

356. To the Boston and Nova Scotia Coal and Railway Company, for 10½ miles of their railway from the north end of the section already subsidized to Broad Cove, a subsidy not exceeding $3,200 per mile; also for 25 miles of their railway from a point on the Cape Breton Railway at or near Orangedale towards Broad Cove, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile; the whole not exceeding 113,600

357. For a railway from Port Hawkesbury towards Cheticamp, 25 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

358. To the Manitoba North-western Railway Company, for 100 miles of the extension of their main line from its present western terminus towards Prince Albert,—the company relinquishing 3,200 acres of the land grant per mile, and the whole road to be operated as a continuous line of railway under one management, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 320,000

359. For a line of railway from the junction of the Elk and Kootenay Rivers to Coal Creek, a distance of 34 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 108,800

360. For a railway from Abbotsford Station on the Mission Branch of the Canadian Pacific Railway to the town of Chilliwack, 21 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200

361. To the Nicola Valley Railway Company, for 28 miles of their railway from the western end of the section of their road subsidized by chapter 5, of 1892, towards Nicola Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 89,600

362. To the Nakusp and Slocan Railway Company, for 38 miles of their railway from the town of Nakusp to a point at or near the Forks of Carpenter Creek, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 121,600

363. To the Pontiac and Kingston Railway Company, for 22 miles of a railway from Portage du Fort to Upper Thorne Centre, via Shawville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

364. To the New Glasgow Iron, Coal and Railway Company, for 5 miles of their railway, from Sunnybrae to Kerrogare, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.... 16,000 00

365. To the South Shore Railway Company, for 35 miles of their railway from Yarmouth towards Shelburne and Lockport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 112,000 00

366. To the Cape Breton Railway Extension Company, for 30 miles of railway from Port Hawkesbury to St. Peter's, on their line of railway from Port Hawkesbury to Louisbourg, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

367. For a railway from a point on the Intercolonial Railway between Norton and Sussex Stations towards Havelock, 20 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $ 64,000 00

368. For a railway from St. John to Barneville, for a distance of 10 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

369. For a line of railway from Cap de la Magdeleine to connect with the Piles Branch of the Canadian Pacific Railway, 3 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600 00

370. To the Canada Eastern Railway Company, for an extension of one mile from the western end of their railway, to connect with the Canadian Pacific Railway, a subsidy not exceeding..... 3,200 00

371. To the Great Northern Railway Company, for 30 miles of their railway from its junction with the Lower Laurentian Railway near St. Tite, in the vicinity of the River St. Maurice, westward, in lieu of the subsidy granted to the Maskinongé and Nipissing Railway Company by chapter 2 of 1893, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

372. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for 16 miles of their railway from Bobcaygeon to the Midland Railway, and for another 16 miles from the end of the first mentioned 16 miles to Pontypool, in lieu of the subsidies granted by chapter 2 of 1890, and chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400 00

373. To the Montfort Colonization Railway Company, for 12 miles of their railway from the end of the 21 miles already subsidized westward to a point on the Rouge River, in the county of Argenteuil, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

374. For a railway from a point on the Caraquet Railway, at or near Pokemouche siding, towards Tracadie village, 12 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railway and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as to subsidies with respect to which it is hereinbefore otherwise provided, and except also as to the

subsidy granted to the Great Northern Railway Company by chapter two of 1893, for fifteen miles from Montcalm to the Canadian Pacific Railway, which shall be paid as follows: on the completion of the eighteen miles from New Glasgow to Montcalm and of two miles out of the fifteen miles from Montcalm to the Canadian Pacific Railway, an instalment proportionate to the value of the ten miles out of the total mileage subsidized by chapter two of 1893, to be established as aforesaid, and the balance of the said subsidy on the completion of the remaining thirteen miles of the said railway.

No subsidies were authorized by 58-59 Vict. (1895), nor by 59 Vict. (1896).

By the Act 60-61, chapter 4, 1897 *(Assented to 29th June, 1897).*

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost, and includes the amount expended upon any bridge up to and not exceeding twenty-five thousand dollars, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated), which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

375. To the Ottawa and New York Railway Company, for $53\frac{87}{100}$ miles of their railway from Cornwall to Ottawa, in lieu of the subsidy granted by chapter 5 of the statutes of 1892,

376. To the Kingston, Smith's Falls and Ottawa Railway Company, for 101 miles of their railway from Kingston, or a junction with the Grand Trunk Railway at Rideau or some other point near Kingston, to Ottawa, in lieu of the subsidy granted by chapter 5 of 1892;

377. For a railway from a point on the Canadian Pacific Railway, at or near either Welsford or Westfield, or between the said two points, to Gagetown, in the county of Queen's, New Brunswick, not exceeding 30 miles, in lieu of the subsidy granted by chapter 2 of 1890;

378. To the Cobourg, Northumberland and Pacific Railway Company, for 50 miles of their railway from Cobourg to the Ontario and Quebec Railway, in lieu of the subsidies granted by chapter 5 of 1892;

379. To the Ottawa and Gatineau Railway Company, for 20 miles of their railway from the end of the 62nd mile subsidized towards Désert, in lieu of the subsidies granted by chapter 4 of 1894;

380. To the Great Northern Railway Company, for 9 miles of their railway, being shortage in distance between Montcalm and St. Tite;

381. To the St. Gabriel de Brandon and Ste. Emélie de l'Energie Railway Company, for 15 miles of their railway from St. Gabriel to Ste. Emélie de l'Énergie, and 5 miles from a point on the main line to St. Jean de Matha, making in all 20 miles, in lieu of the subsidy granted by chapter 4 of 1894;

382. To the Central Railway Company of New Brunswick, for 15 miles of their railway from Chipman Station to Newcastle Coal Fields, county of Queen's, in lieu of the subsidy granted by chapter 4 of 1894;

383. To the Gulf Shore Railway Company, for 5½ miles of their railway from the end of the section subsidized to Tracadie and thence to Big Tracadie, New Brunswick;

384. For a railway from Campbellton, on the Intercolonial Railway, towards Grand Falls, New Brunswick, a distance of 20 miles, commencing at Campbellton, in lieu of the subsidy granted by chapter 4 of 1894;

385. To the Pontiac Pacific Junction Railway Company, for 7½ miles of their railway from Hull to Aylmer, in lieu of the subsidy granted by chapter 2 of 1890;

386. To the Schomberg and Aurora Railway Company, for 15 miles of their railway from a point on the Grand Trunk Railway between King and Newmarket to Schomberg, in the province of Ontario;

387. To the Tilsonburg, Lake Erie and Pacific Railway Company, for $3\frac{50}{100}$ miles of their railway from the present terminus, through Tilsonburg to the Michigan Central Railway, in the province of Ontario.

388. To the Ottawa, Arnprior and Parry Sound Railway Company, for 52 miles of their railway, from the crossing of the Northern Pacific Junction Railway to 55 miles west of Barry's Bay, and also for 4 miles of their railway across Parry Island;

389. To the Pembroke Southern Railway Company, for 20 miles of their railway from Pembroke to Golden Lake, in the province of Ontario;

390. To the Ontario and Rainy River Railway Company, for 80 miles of their railway from the Port Arthur, Duluth and Western Railway to Rainy Lake, in the province of Ontario;

391. To the Strathroy and Western Counties Railway Company, for 7 miles of their railway, commencing at a point at or near Caradoc Station on the Canadian Pacific Railway and extending to the town of Strathroy;

392. To the Phillipsburg Railway and Quarry Company, for $\frac{66}{100}$ mile of their railway from the end of the subsidized section to the government wharf at Phillipsburg;

393. To the United Counties Railway Company, for 1 mile of their railway from Johnson to St. Grégoire Station, in the province of Quebec;

394. To the St. Lawrence and Adirondack Railway Company, for 13½ miles of their railway from Beauharnois to Caughnawaga, in the province of Quebec;

395. To the East Richelieu Valley Railway Company, for 24 miles of their railway from Iberville to St. Thomas, boundary of Missisquoi County, in the province of Quebec;

396. To the Portage du Fort and Bristol Branch Railway Company, for 15 miles of their railway to a point at or near Shawville, in the county of Pontiac;

397. For a railway from a point at or near Windsor Junction, on the Intercolonial Railway, to Upper Musquodoboit, for a distance of 40 miles;

398. To the St. Stephens and Milltown Railway Company, for $1\frac{14}{100}$ mile of their railway from Milltown to St. Stephen, in the province of New Brunswick;

399. For a railway from Sunny Brae to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysboro', in the province of Nova Scotia, a distance of 65 miles;

400. For a railway from Port Hawkesbury, Nova Scotia, to Port Hood and Broad Cove, 53 miles, in lieu of the subsidy granted by chapter 4 of 1894;

401. For a railway from a point on the Central Railway in the county of Lunenburg, Nova Scotia, to the town of Liverpool, via the village of Caledonia, or to the village of Caledonia via Liverpool, or for any part thereof, the whole distance not exceeding 62 miles;

402. For a railway from Indian Garden on the line of the Central Railway, to Shelburne, in the province of Nova Scotia, a distance of 35 miles;

403. To the Coast Railway Company of Nova Scotia, for 61 miles of their railway from Yarmouth to Port Clyde, in the province of Nova Scotia;

404. For a railway from Brookfield Station on the Intercolonial Railway to Eastville, 30 miles;

405. To the Great Northern Railway Company, for 35 miles of their railway from St. Jérôme, in the province of Quebec, to Hawkesbury, in the province of Ontario;

406. To the Drummond County Railway Company, for 42½ miles of their railway from Moose Park to Chaudière River, provided that the amount of the said subsidy shall be refunded to the Government of Canada in the event of the company's railway from Ste. Rosalie to Chaudière River being purchased or leased for a term of years by the government.

3. The Governor in Council may grant the subsidies hereinafter mentioned to the railway companies and towards the construction of the railways also hereinafter mentioned, that is to say:—

407. To the Great Northern Railway Company, for 67 miles of their railway between Montcalm and its junction with the Lower Laurentian Railway near St. Tite, in the vicinity of the St. Maurice River, the balance remaining unpaid of the subsidies granted by chapter 2 of 1893, and by chapter 4 of 1894, between these points, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 182,400 00

408. To the Pontiac Pacific Junction Railway Company, for 85 miles of their railway from Aylmer to Pembroke, also for bridging the Ottawa River, the balance remaining unpaid of the subsidy granted by chapter 8 of 1884, and by chapter 4 of 1894, not exceeding..... 114,272 00

409. To the Ottawa and Gatineau Railway Company, for 62 miles of their railway from Hull towards Désert, in the province of Quebec, the balance remaining unpaid of the subsidy granted by chapter 2 of 1893, not exceeding in the whole..... 35,872 00

410. To the Grand Trunk Railway Company of Canada, for a subsidy towards the rebuilding and enlargement of the Victoria Bridge at Montreal over the St. Lawrence River, 15 per cent upon the amount expended thereon, not exceeding..... 300,000 00

411. To the Montfort Colonization Railway Company, for 33 miles of their railway from Montfort Junction to Arundel, in the province of Quebec, a subsidy not exceeding $2,000 per mile, nor exceeding in the whole..... 66,000 00

412. To the Irondale, Bancroft and Ottawa Railway Company, the balance remaining unpaid of the subsidy for the last five miles of the company's railway; the eastern terminus to be either at the village of Bancroft or at some point near the Hastings Road, in the township of Herschell, in lieu of the subsidy granted by chapter 2 of 1893, not exceeding in the whole..... 16,000 00

413. To the Great Northern Railway Company, towards the construction of a railway bridge over the Ottawa River at Hawkesbury, 15 per cent upon the amount expended thereon, not exceeding..... 52,500 00

414. For a railway and traffic bridge over the Ottawa River at Nepean Point, between the city of Ottawa and the city of Hull, 15 per cent upon the amount expended thereon, not exceeding..... 112,500 00

4. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and

upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

5. The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

6. The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to subsidies with respect of which it is hereinbefore otherwise provided.

7. Any company receiving a subsidy as aforesaid, in excess of $3,200 per mile, shall be bound to carry Her Majesty's mails for a term of ten years free of charge over the portion of railway subsidized.

By the Special Act 60-61 Victoria, Chapter 5, 1897. *(Assented to 29th June, 1897.)*

1. Subject to the conditions hereinafter mentioned, the Governor in Council may grant to the Canadian Pacific Railway Company a subsidy towards the construction of a railway from Lethbridge, in the district of Alberta, through the Crow's Nest Pass to Nelson, in the province of British Columbia (which railway is hereinafter called "the Crow's Nest Line,") to the extent of eleven thousand dollars per mile thereof, and not exceeding in the whole the sum of three million six hundred and thirty thousand dollars, payable by instalments on the completion of each of the several sections of the said railway of the length respectively of not less than ten miles, and the remainder on the completion of the whole of the said railway; provided that an agreement between the Government and the company is first entered into in such form as the Governor in Council thinks fit, containing covenants to the following effect, that is to say:—

On the part of the company:

(*a*.) That the company will construct or cause to be constructed, the said railway upon such route and according to such descriptions and specifications and within such time or times as are provided for in the said agreement, and, when completed, will operate the said railway for ever;

(*b*.) That the said line of railway shall be constructed through the town of Macleod, and a station shall be established therein, unless the Governor in Council is satisfied by the company that there is good cause for constructing the railway outside the limits of the said town, in which case the said line of railway shall be located and a station established at a distance not greater than five hundred yards from the limits of the said town;

(*c*.) That so soon as the said railway is opened for traffic to Kootenay Lake, the local rates and tolls on the railway and on any other railway used in connection therewith and now or hereafter owned or leased by or operated on account of the company south of the company's main line in British Columbia, as well as the rates and tolls between any point on any such line or lines of railway and any point on the main line of the company throughout Canada, or any other railway owned or leased by or operated on account of the company, including its lines of steamers in British Columbia, shall be first approved by the Governor in Council or by a railway commission, if and when such commission is established by law, and shall at all times thereafter and from time to time be subject to revision and control in the manner aforesaid;

(*d*.) That a reduction shall be made in the general rates and tolls of the company as now charged, or as contained in its present freight tariff, whichever rates are now the lowest, for carloads or otherwise, upon the classes of merchandise hereinafter mentioned, westbound, from and including Fort William and all points east of Fort

William on the company's railway to all points west of Fort William on the company's main line, or on any line of railway throughout Canada owned or leased by or operated on account of the company, whether the shipment is by all rail line or by lake and rail, such reduction to be to the extent of the following percentages respectively, namely :—

Upon all green and fresh fruits, 33⅓ per cent ;

Coal oil, 20 per cent ;

Cordage and binder twine, 10 per cent ;

Agricultural implements of all kinds, set up or in parts, 10 per cent ;

Iron, including bar, band, Canada plates, galvanized, sheet, pipe, pipe-fittings, nails, spikes and horse shoes, 10 per cent ;

All kinds of wire, 10 per cent ;

Window glass, 10 per cent ;

Paper for building and roofing purposes, 10 per cent ;

Roofing felt, box and packing, 10 per cent ;

Paints of all kinds and oils, 10 per cent ;

Live stock, 10 per cent ;

Wooden ware, 10 per cent ;

Household furniture, 10 per cent ;

And that no higher rates than such reduced rates or tolls shall be hereafter charged by the company upon any such merchandise carried by the company between the points aforesaid ; such reductions to take effect on or before the first of January, one thousand eight hundred and ninety-eight ;

(*e.*) That there shall be a reduction in the company's present rates and tolls on grain and flour from all points on its main line, branches or connections, west of Fort William to Fort William and Port Arthur and all points east, of three cents per one hundred pounds, to take effect in the following manner :—One and one-half cent per one hundred pounds on or before the first day of September, one thousand eight hundred and ninety-eight, and an additional one and one-half cent per one hundred pounds on or before the first day of September, one thousand eight hundred and ninety-nine ; and that no higher rates than such reduced rates or tolls shall be charged after the dates mentioned on such merchandise from the points aforesaid ;

(*f.*) That the Railway Committee of the Privy Council may grant running powers over the said line of railway and all its branches and connections, or any portions thereof, and all lines of railway now or hereafter owned or leased by or operated on account of the company in British Columbia south of the company's main line of railway, and the necessary use of its tracks, stations and station grounds, to any other railway company applying for such grant upon such terms as such committee may fix and determine, and according to the provisions of The Railway Act and of such other general Acts relating to railways as are from time to time passed by Parliament ; but nothing herein shall be held to imply that such running powers might not be so granted without the special provision herein contained ;

(*g.*) That the said railway, when constructed, together with that portion of the company's railway from Dunmore to Lethbridge, and all lines of railway, branches, connections and extensions in British Columbia south of the main line of the company in British Columbia shall be subject to the provisions of The Railway Act and of such other general Acts relating to railways as are from time to time passed by Parliament ;

(*h.*) That if the company or any other company with whom it shall have any arrangement on the subject shall, by constructing the said railway or any part of it, as stipulated for in the said agreement, become entitled to and shall get any land as a subsidy from the Government of British Columbia, then such lands, excepting therefrom those which in the opinion of the Director of the Geological Survey of Canada (expressed in writing) are coal-bearing lands, shall be disposed of by the company or by such other company to the public according to regulations and at prices not exceeding these prescribed from time to time by the Governor in Council, having regard to the then existing provincial regulations applicable thereto ; the expression "lands" including all mineral and timber thereon which shall be disposed of as aforesaid, either with or without the land, as the Governor in Council may direct :

(*i.*) That if the company or any other company with whom it shall have any arrangement on the subject shall, by constructing the said railway or any part of it as stipulated for in the said agreement, become entitled to and shall get any lands as a subsidy from the Government of British Columbia which in the opinion of the Director of the Geological Survey of Canada (expressed in writing) are coal-bearing lands, then the company will cause to be conveyed to the Crown, in the interest of Canada, a portion thereof to the extent of fifty thousand acres, the same to be of equal value per acre as coal lands with the residue of such lands. The said fifty thousand acres to be selected by the Government in such fair and equitable manner as may be determined by the Governor in Council, and to be thereafter held or disposed of or otherwise dealt with by the Government as it may think fit on such conditions, if any, as may be prescribed by the Governor in Council, for the purpose of securing a sufficient and suitable supply of coal to the public at reasonable prices, not exceeding two dollars per ton of two thousand pounds free on board cars at the mines.

And on the part of the Government, to pay the said subsidy by instalments as aforesaid.

2. The company shall be bound to carry out in all respects the said agreement, and may do whatever is necessary for that purpose.

3. In order to facilitate such financial arrangements as will enable the company to complete the railway as aforesaid without delay and to acquire and consolidate with it the railway from Dunmore to Lethbridge, hereinafter called "the Alberta Branch," which, under the authority of chapter thirty-eight of the statutes of 1893, it now operates as lessee, and is under covenant to purchase, the company may issue bonds which will be a first lien and charge and be secured exclusively upon the said Alberta Branch and Crow's Nest Line together in the same way and with the same effect as if both the said pieces of railway to be so consolidated were being built by the company as one branch of its railway within the meaning of section one of chapter fifty-one of the statutes of 1888, and that section shall apply accordingly, such first lien to be subject to the payment of the purchase money of the Alberta Branch, as provided for in the said covenant to purchase.

By the Act 62–63 Vic., chapter 7 (*Assented to 11th August, 1899*).

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

415. To the Central Ontario Railway Company, for an extension of their railway from, or from near, either Coe Hill or Rathbun Station on the company's railway to, or near to Bancroft, not exceeding 21 miles, in lieu of the subsidy granted by chapter 5 of 1892;

416. To the Great Northern Railway Company, for a railway between Montcalm and St. Tite Junction, on the Lower Laurentian Railway, Quebec, not exceeding 53½ miles; and for a branch from their main line to Shawenegan Falls, Quebec, not exceeding 6½ miles.

417. To the Phillipsburg Railway and Quarry Company, shortage in the extension of their railway from a point on the company's line at or near the end of the subsidized section, to the government wharf at Phillipsburg, Quebec, not exceeding $\frac{66}{100}$ of a mile;

418. To the Strathroy and Western Counties Railway Company, for a line from Strathroy, Ontario, via Adelaide and Arkona, to either Forest, Tedford, or Park Hill, not exceeding 24 miles, in lieu of the subsidy granted by chapter 4 of 1894;

419. To the St. John Valley and Rivière du Loup Railway Company, for a line of railway from Fredericton, in the county of York, New Brunswick, to Woodstock, in the county of Carleton, not exceeding 59 miles;

420. For a railway from Port Hawkesbury, on the Strait of Canso, Nova Scotia, to St. Peter's, not exceeding thirty miles;

421. For a railway from Windsor, Nova Scotia, to Truro, via the township of Clifton, not exceeding 58 miles, in lieu of the subsidy granted by chapter 4 of 1894;

422. For a railway from a point at or near Brooktield Station, Nova Scotia, on the Intercolonial Railway, to Eastville, not exceeding 25 miles, in lieu of the subsidy granted by chapter 4 of 1897;

423. For a railway from Cross Creek Station, on the Canada Eastern Railway, to Stanley Village, New Brunswick, not exceeding 6 miles;

424. For a railway from the village of St. Rémi to Stottville or some point on the Delaware and Hudson Railway (Grand Trunk) in the parish of St. Paul de l'Ile aux Noix, not exceeding 19 miles;

425. For a railway between Pontypool and Bobcaygeon, via Lindsay, Ontario, not exceeding 40 miles.

426. To the Pontiac Pacific Junction Railway Company, for a railway from Aylmer to Hull, Quebec, not exceeding 9 miles, in lieu of the subsidy granted by chapter 4 of 1897;

427. To the Portage du Fort and Bristol Branch Railway Company, for a branch line from a point on the Pontiac Pacific Junction Railway at or near the village of Quyon, towards the village of Portage du Fort, Quebec, not exceeding 15 miles, in lieu of the subsidy granted by chapter 4 of 1897;

428. To the Orford Mountain Railway Company, for a branch from their railway from a point between Lawrenceville and Eastman to Waterloo, not exceeding 13 miles;

429. To the Atlantic and Lake Superior Railway Company, for an extension of their railway from Caplin to Paspebiac, Quebec, not exceeding 30 miles;

430. To the United Counties Railway Company, for a railway from St. Robert Junction to Sorel, 6½ miles, (this sudsidy to be payable only in the event of adequate running rights over the South-eastern Railway between the two points above mentioned not being granted to the first mentioned Company on terms to be approved by the Railway Committee of the Privy Council,) and from Mount Johnson to St. Grégoire Station, 1 mile, not exceeding 7½ miles.

431. For a railway from a point on the Central Railway in the county of Lunenburg, Nova Scotia, to the town of Liverpool, via the village of Caledonia, or to the village of Caledonia, via Liverpool, or for any part thereof, the whole distance not exceeding 62 miles;

432. For a railway from Indian Gardens, Queen's County, Nova Scotia, to Shelburne, in the said province, a distance of 35 miles;

433. The subsidy which the Ontario and Rainy River Railway Company is entitled to receive under chapter 4 of 1897, shall be $6,400 per mile for the 80 miles mentioned in the said Act; not exceeding in all $512,000.

434. To the Bay of Quinté Railway Company, for such extensions, branches or additions to their system as will enable the said Company to connect their lines of railway or connecting lines with iron or other mines or mineral or wood lands in the counties of Peterborough, Northumberland, Hastings, Lennox and Addington, Frontenac or Leeds, payable in instalments regulated by the length of each of the said extensions or branches or additions, as the case may be, in lieu of part of the balance remaining unpaid of the subsidy granted to the Kingston, Napanee and Western Railway Company, by chapter 5 of 1892, but not exceeding $3,200 per mile for 10 miles, nor exceeding in the whole $32,000;

435. To the Quebec and Lake St. John Railway Company, for 12 miles of their railway from the end of their line at deep water on the Chicoutimi branch of their railway, to Ha Ha Bay, in the lieu of the subsidy for the 12 miles granted by chapter 4 of 1894;

436. For a line of railway from Hawkesbury, Ontario, to South Indian, not exceeding 35 miles;

437. For a railway from Sault Ste. Marie, Ontario, towards Michipicoten River and harbour and towards the main line of the Canadian Pacific Railway, not exceeding 40 miles;

438. For a branch line of railway from the main line of the Ottawa, Arnprior and Parry Sound Railway to the town of Parry Sound, Ontario, not exceeding 5 miles;

439. For a railway from the village of Haliburton, via the village of Whitney, towards the town of Mattawa, Ontario, not exceeding 20 miles;

440. For an extension of the Tilsonburg, Lake Erie and Pacific Railway, from Tilsonburg to Ingersoll or Woodstock, Ontario, not exceeding 28 miles;

441. To the South Shore Railway Company, from Sorel Junction along the South Shore to Lotbinière, Quebec, a distance not exceeding 82 miles;

442. To the Massawippi Valley Railway Company for an extension of their railway to the village of Stanstead Plain, Quebec, not exceeding 2½ miles;

443. For a railway from Port Hawkesbury on the Strait of Canso, to Caribou Cove, Nova Scotia, a distance of 10 miles;

444. For a railway from Fort Frances, Ontario, westerly to a point at or near the mouth of Rainy River, a distance not exceeding 70 miles;

445. To the Central Railway Company of New Brunswick, for an extension of their line of railway from Newcastle Coal Fields to Gibson, New Brunswick, not exceeding 30 miles;

446. To the Canadian Northern Railway Company, for a railway from a point on the present line of the Winnipeg Great Northern Railway north of Swan River to Prince Albert, North-west Territories, not exceeding 100 miles;

447. For a railway from some point near Antler Station to a point near Moose Mountain, Manitoba, not exceeding 50 miles;

448. For a railway from Sunnybrae to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysborough, Nova Scotia, to make up the deficiency in mileage between points mentioned and subsidized by chapter 4 of 1897, additional mileage not exceeding 15 miles;

449. For a railway from Port Clyde towards Lockeport, in the province of Nova Scotia, not exceeding 20 miles;

450. For a railway from a point on the Intercolonial Railway at or near Halifax towards the Central Railway in the county of Lunenburg, not exceeding 20 miles;

451. For a railway from Labelle, in the province of Quebec, in a north-westerly direction, to Nomininguc, via Notre Dame de l'Annonciation, a distance not exceeding 22 miles;

452. For a railway from Owen Sound, in the province of Ontario, to Meaford, not exceeding 21 miles;

453. To the Ottawa and Gatineau Railway Company, for their line of railway in and through the city of Hull, Quebec, not exceeding 4 miles;

454. To the Western Alberta Railway Company, from a point on the United States boundary, west of Range 27, north-westerly towards Anthracite, in the district of Alberta, not exceeding 50 miles ;

455. To the Edmonton, Yukon and Pacific Railway Company, for a railway from the town of South Edmonton, North-west Territories, to North Edmonton, and thence westerly towards the Yellow Head Pass, a distance not exceeding 50 miles ;

456. To the Restigouche and Western Railway Company, in addition to the 20 miles subsidized by chapter 4 of 1897, and in continuation from the westerly end of the said 20 miles towards the St. John River, a further distance not exceeding 15 miles, and for the company's railway from a point on the St. John River, New Brunswick, at or near Grand Falls, or St. Leonard, or between Grand Falls and St. Leonard, and extending easterly towards Campbellton, such point to be approved by the Governor in Council, a distance of 12 miles ; in all not exceeding 27 miles ;

457. For a railway in extension of the St. Francis branch of the Temiscouata Railway to the mouth of the St. Francis River, a distance not exceeding 3 miles ;

458. To the Canada Eastern Railway Company, for a line of railway from Nelson, New Brunswick, to connect with the company's main line running into Chatham, to complete the connection from Nelson to such main line, not exceeding in the whole 2¼ miles ;

459 To the Bay of Quinté Railway Company, for an extension of their line in a westerly direction from a point at or near Richmond boundary road near Deseronto for a distance not exceeding 2 miles ; also for an extension of their line from its present terminus at Tweed in a northerly direction for a distance of 2 miles, and for an extension of their line from the end of the last 2 miles mentioned in a northerly direction for a distance not exceeding 3 miles—in all 7 miles ; subsidies payable on each of the sections mentioned as each of such sections is completed ;

460. To the Ontario, Belmont and Northern Railway Company, for an extension of their railway from its present terminus at Iron Mines in a north-westerly direction, a distance not exceeding 5 miles ; and also for an extension of the company's railway southerly, from the present southern terminus thereof to the Central Ontario Junction of the Canadian Pacific Railway, a distance not exceeding 2 miles ; but the last mentioned aid for the said 2 miles of railway shall not be granted in case the Railway Committee of the Privy Council finds that adequate running powers on fair terms can be secured to the company over that portion of the line of the Central Ontario Railway between the present southerly end of the Ontario, Belmont and Northern Railway and the Canadian Pacific Railway Company's line at Central Ontario Junction ; subsidies payable on each of the sections mentioned as each of such sections is completed ;

461. For a line of railway from a point on the Pembroke Southern Railway at or near Golden Lake, Ontario, towards a point on the Irondale, Bancroft and Ottawa Railway at or near Bancroft, not exceeding 20 miles ;

462. For a line of railway from Paspebiac, Quebec, to Gaspé in the said province, a distance not exceeding 82 miles ;

463. To the Lake Erie and Detroit River Railway Company, for a line of railway from Ridgetown, Ontario, to St. Thomas, in the said province, a distance not exceeding 44 miles ; this subsidy to be payable only in the event of adequate running rights over the Canada Southern Railway between the two points above mentioned not being granted to the first mentioned company on terms to be approved by the Railway Committee of the Privy Council ;

464. To the Kingston and Pembroke Railway Company, for the construction of branches from the Company's main line to the iron mine at Bluff Point and to the Martele mine in the county of Renfrew, not exceeding 5 miles ;

465. For a railway from the town of Parry Sound extending northerly towards Sudbury, a distance not exceeding 20 miles.

3. The Governor in Council may grant the subsidies hereinafter mentioned towards the construction of the railways also hereinafter mentioned, that is to say :—

466. The Ontario and Rainy River Railway Company, for a railway from a point 80 miles west of Stanley Station, on the Port Arthur, Duluth and Western Railway, to Fort Frances, for a distance of 140 miles, at $6,400 per mile, not exceeding in the whole	$ 896,000 00
467. To the Quebec Bridge Company, towards the construction of a railway bridge over the St. Lawrence River, at Chaudière Basin, near Quebec, one million dollars, 40 per cent of which amount may be paid on monthly progress estimates, approved by the Government engineers, of materials delivered and work done	1,000,000 00
468. To the South Shore Railway Company, towards the restoration and renewal of the railway bridge over the Yamaska River at Yamaska, Quebec	50,000 00
469. Towards the construction of a bridge over the Richelieu River at Sorel, 15 per cent upon the amount expended thereon, not exceeding	35,000 00
470. Towards the construction of a bridge across the St. Francis River, 15 per cent of the amount expended thereon, not exceeding	50,000 00
471. Towards the construction of a bridge across the Nicolet River, 15 per cent upon the amount expended thereon, not exceeding	15,000 00
472. To the Midland Railway Company, Limited, towards the construction of a bridge across the Shubenacadie River, 15 per cent upon the amount expended thereon, not exceeding	33,750 00
473. To the Great Northern Railway Company, towards the construction of a bridge across the St. Maurice River, 15 per cent upon the amount expended thereon, not exceeding	16,425 00
474. Also towards the construction of a bridge across the Rivière du Loup, 15 per cent upon the amount expended thereon, not exceeding	15,000 00
475. Also towards the construction of a steel bridge and viaduct at the Maskinongé River, 15 per cent upon the amount expended thereon, not exceeding	15,000 00

4. The subsidies granted to the Ontario and Rainy River Railway Company, the Canadian Northern Railway Company and the Edmonton, Yukon and Pacific Railway Company are granted upon the condition, and, if received and paid under the authority of this Act to the above mentioned companies respectively, shall be received upon the condition, that the said companies shall not, nor shall any of them, at any time amalgamate with, or lease its line or lines to, any railway company other than those mentioned in this section, except as may be authorized by Parliament ; nor shall any of the said railways be leased to or operated by any other company ; nor shall any of the said companies make an agreement for a common fund or for pooling its receipts with any other railway company ; and any such lease, amalgamation or agreement shall be absolutely void, excepting in so far as such agreement may extend to traffic or running arrangements which have been approved by the Governor in Council.

5. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively ; all the lines for the construction of

which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights as will afford to all railways connecting with those so subsidized reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control at all times over the rates and tolls to be levied and imposed by any of the companies or upon any of the railways hereby subsidized.

7. The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to subsidies with respect to which it is hereinbefore otherwise provided.

8. Every company receiving a subsidy under this Act, its successors or assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, material and mails over the portion of its line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars, properly equipped, for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the department of the Government for which such service is being performed and the company performing it, and in case of disagreement, then at such rates as are approved by the Governor in Council. and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under this Act.

9. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the said railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

By the Act 63-64 Vic., chapter 8 (*Assented to July 18, 1900*).

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his

opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile :—

476. For a railway from a point at or near the junction of the Irondale, Bancroft and Ottawa Railway and the Grand Trunk Railway to the village of Minden, in the county of Haliburton, Ontario, not exceeding 12 miles.

477. To the Strathroy and Western Counties Railway Company, for a railway commencing at a point at or near Caradoc station, on the Canadian Pacific Railway, and extending to the town of Strathroy, Ontario, not exceeding 7 miles.

478. For a line of railway from a point on the Pembroke Southern Railway at or near Golden Lake, towards a point on the Irondale, Bancroft and Ottawa Railway at or near Bancroft, Ontario, for the further extension of such railway westerly from the western terminus of the 20 miles subsidized by chapter 4 of 1897, for a distance not exceeding 20 miles.

479. To the Algoma Central Railway Company for 25 miles of its line of railway from its terminus at Michipicoten Harbour, Lake Superior, towards the main line of the Canadian Pacific Railway, and for a further extension of this company's line of railway from Sault Ste. Marie towards Michipicoten River and Harbour, Ontario, towards the main line of the Canadian Pacific Railway, 25 miles in all, not exceeding 50 miles.

480. To the Central Ontario Railway Company, for a further extension of their railway from, at or near Bancroft to a point on the Canada Atlantic Railway between Whitney and Barry's Bay, Ontario, not exceeding 20 miles.

481. To the Manitoulin and North Shore Railway Company, for a line of railway between Little Current, on Manitoulin Island, and Sudbury, Ontario, on the Canadian Pacific Railway, the company undertaking to bridge between Little Current and the main land, the bridge to be so constructed and maintained as to afford suitable facilities, in the opinion of the Minister of Railways and Canals, for free vehicular and passenger traffic, the same as upon a public highway, the work to be begun and prosecuted from Little Current and Sudbury, one-half of the subsidy to be applicable, as earned, in respect of the work beginning at Little Current and carried on towards Sudbury, and one-half thereof to be applicable, as earned, in respect of the work beginning at Sudbury and carried on towards Little Current, the course of the line of railway to cross the Sault Ste. Marie branch of the Canadian Pacific Railway, not exceeding 66 miles.

482. For a railway from Bracebridge, in Muskoka, to a point at or near Baysville, Ontario, not exceeding 15 miles.

483. For a railway beginning at a point northerly 20 miles from Parry Sound, and extending from that point to the French River, Ontario, not exceeding 35 miles.

484. For a railway from a point 20 miles north-easterly from the village of Haliburton, via the village of Whitney, towards the village of Mattawa, Ontario, not exceeding 40 miles.

485. To the Kingston and Pembroke Railway Company, for a branch line of railway to iron mines in Bedford township, Ontario, not exceeding 12 miles.

486. To the Thousand Islands Railway Company for an extension of their railway from the present northerly terminus to a point easterly thereof, not exceeding 2 miles;

And also for an extension from a point on the railway to connect their railway with the Brockville, Westport and Sault Ste. Marie Railway, the Bay of Quinté Railway, the Kingston, Smith's Falls and Ottawa Railway, or the waters of the Rideau Canal, the balance remaining of the subsidy granted by chapter 5 of 1892, not exceeding 9½ miles.

487. For a railway from Dyment, on the Canadian Pacific Railway, to the New Klondike mining district, Ontario, not exceeding 7 miles.

488. To the Schomberg and Aurora Railway Company, for an extension of their line from its easterly terminus to a point at or near Bond's Lake, Ontario, not exceeding 4 miles.

489. To the Nipissing and James Bay Railway Company, for a railway from, at or near North Bay station, on the Canadian Pacific Railway, towards James Bay, or Lake Tamagaming, Ontario, not exceeding 20 miles.

490. In aid of the Ottawa and New York Railway Company's bridge over the St. Lawrence River, and for the Canadian portion of such bridge, a sum not exceeding $90,000.

491. To the Grand Trunk Railway Company of Canada, towards the cost of the rebuilding and enlargement of the Victoria Bridge over the St. Lawrence River, Quebec, in addition to the amount received by the company on account of the subsidy granted by chapter 4 of 1897, viz: $270,000, to make up the grant in aid of the undertaking to $500,000, upon condition that the tolls upon the bridge for passenger and vehicular traffic shall be subject to the approval of the Governor in Council, a sum not exceeding $230,000.

492. For a railway and traffic bridge over the Ottawa River at Nepean Point, between the city of Ottawa, Ontario, and the city of Hull, Quebec, upon condition that the bridge be so constructed as to provide suitable facilities, to the satisfaction of the Minister of Railways and Canals, for free vehicular and foot passenger traffic, the same as upon a public highway, in addition to the $112,500 already granted,—and, notwithstanding anything in the said Act, the subsidy hereby granted, together with the grant of $112,500 under chapter 4 of 1897, shall be paid upon the completion of the bridge and its approaches, upon the Chief Engineer's report of such completion, and the recommendation of the Minister,—a sum not exceeding $100,000.

493. To the Canadian Northern Railway Company, in further extension of their railway north of Swan River towards Prince Albert, North-west Territories, in addition to the grant by chapter 7 of 1899, a further mileage not exceeding 100 miles.

494. For a railway from the westerly end of the Waskada branch of the Canadian Pacific Railway, Manitoba, further westward, not exceeding 20 miles.

495. For a railway from a point on the Alberta Railway and Coal Company's Railway towards Cardston, Alberta, N.W.T., for 30 miles of railway at $2,500 per mile.

496. To the Kaslo and Lardo-Duncan Railway Company, for a railway from Duncan Lake towards Lardo or Arrow Lake, British Columbia, or from Lardo to Arrow Lake, not exceeding 30 miles.

497. To the Restigouche and Western Railway Company, for the company's railway, in addition to the 15 miles subsidized by chapter 7 of 1899, on the easterly section of the line, and in continuation from the westerly end of the said 15 miles, a further distance of 15 miles towards the St. John River; and for the said railway, in addition to the 12 miles subsidized by the said chapter on the westerly section of the said line, a further distance from the easterly end thereof of 15 miles, towards Campbellton, N.B., not exceeding 30 miles.

498. For a line of railway from St. Charles Junction on the Intercolonial Railway towards the St. Francis branch of the Temiscouata Railway, Quebec, not exceeding 45 miles, and from the mouth of the St. Francis River, N.B., westerly towards St. Charles Junction, 15 miles, in all not exceeding 60 miles.

499. For a line of railway from Bristol, in the county of Carleton, New Brunswick, on the Canadian Pacific Railway, easterly, a distance not exceeding 17 miles.

500. For a line of railway from Shediac, county of Westmorland, New Brunswick, to Shemogue, and towards Cape Tormentine, in the said county, a distance not exceeding 38 miles.

501. For a railway from Lockeport, Nova Scotia, to Sable River, or other convenient point of railway connection, not exceeding 20 miles.

502. To the Inverness and Richmond Railway Company, for a railway in extension of the company's line northward from Broad Cove to Cheticamp, C.B., Nova Scotia, not exceeding 40 miles.

503. For a railway from Bridgetown to Victoria Beach, Nova Scotia, not exceeding 30 miles.

504. For a railway from a point on the Intercolonial Railway, Pictou branch, to Kempt Town, county of Colchester, Nova Scotia, not exceeding 4½ miles.

505. For a railway from Brazil Lake, on the Dominion Atlantic Railway, to Kemptville, Nova Scotia, not exceeding 11 miles.

506. To the Montfort and Gatineau Colonization Railway Company, to enable it to extend its railway from Arundel to a point in the municipality of the united townships of Preston and Hartwell, province of Quebec, not exceeding 30 miles.

507. To the Chateauguay and Northern Railway Company, for a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway, in or near the town of Joliette, passing near the town of L'Assomption, Quebec, together with a spur into the said town, not exceeding 42 miles.

508. To the Chateauguay and Northern Railway Company, for a single-track standard railway bridge, with two roadways 10 feet wide, for free vehicular and foot passenger traffic, the same as upon a public highway, from Bout L'Isle to Charlemange, at the junction of the Ottawa and St. Lawrence rivers, $150,000.

509. To the Chateauguay and Northern Railway Company, towards the construction of a bridge across the Lac Ouareau River, $15,000.

510. To the Arthabaska Railway Company, for a railway from Victoriaville to West Chester, province of Quebec, a distance not exceeding 12 miles.

511. To the Great Northern Railway Company, for a branch line from the town or from near the town of Joliette towards Ste. Emélie, touching the parishes of Ste. Beatrix and Ste. Jean de Matha, not exceeding 20 miles.

512. For a railway from Farnham, province of Quebec, to Frelighsburg and the International Boundary Line, not exceeding 21 miles.

513. Towards the construction of a railway bridge over the St. Francis River, in lieu of the grant under chapter 7 of 1899, at St. François du Lac, on the condition that the bridge, with approaches, be built so as to allow the municipalities to make use thereof, to establish and maintain a suitable roadway for the free passage of foot passengers, vehicles and animals, to be approved by the Minister of Railways and Canals, $50,000.

514. Towards the construction of a railway bridge over the Nicolet River at Nicolet, in lieu of the grant under chapter 7 of 1899, $15,000.

515. For a line of railway from Halifax towards a point on the Central Railway of Nova Scotia, in the county of Lunenburg, in addition to and in extension of the 20 miles subsidized by chapter 7 of 1899, not exceeding 20 miles.

3. The subsidies hereby granted and any subsidies heretofore granted under any Act of the Parliament of Canada, still in force, but not fully paid, towards the construction of any railway or bridge, shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless in this Act otherwise expressly provided, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows:

(*a*) upon the completion of the work subsidized; or

(*b*.) by instalments on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken · or

(*c.*) upon progress estimates on the certificate of the Chief Engineer of Railways and Canals, that in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than sixty thousand dollars; or

(*d.*) with respect to (*b*) and (*c*), part one way, part the other.

4. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the government, which agreement the government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

5. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights as will afford to all railways connecting with those so subsidized reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control at all times over the rates and tolls to be levied and imposed by any of the companies or upon any of the railways hereby subsidized.

6. The Governor in Council may make it a condition of the subsidies hereby granted, or of any heretofore granted by any Act of Parliament as to which a contract has not yet been entered into between Her Majesty and the company for the construction of the railway, that the company shall lay its road with new steel rails made in Canada, if such rails are procurable in Canada of suitable quality upon terms as favourable as other rails can be obtained upon, of which the Minister of Railways and Canals shall be the judge.

7. Every company receiving a subsidy under this Act, its successors or assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the government of Canada transportation for men, supplies, material and mails over the portion of its line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars, properly equipped, for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the minister of the department of the government for which such service is being performed and the company performing it, and in case of disagreement then at such rates as are approved by the Governor in Council; and in or towards payment for such charges the government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under this Act.

8. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the said railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

9. Paragraph 20 of section 2 of chapter 7 of the statutes of 1899 is amended by inserting after the word 'railway,' in the third line, the words 'or to connect the said lines.'

10. The subsidy provided for by chapter 7 of the statutes of 1899 towards the construction of a railway bridge over the St. Lawrence River at Chaudière Basin, near Quebec, shall be deemed to be applicable, as to one-third thereof, to the substructure and approaches, and as to two-thirds thereof to the superstructure, and the said subsidy may be paid upon that basis by authority of the Governor in Council, upon progress estimates to be furnished from time to time by the Chief Engineer of Government Railways and Canals, so that one-third of such subsidy, and no more, may be paid in respect of and upon completion of the masonry of the substructure and approaches of the said bridge, one-third, and no more, upon the work and material of one-half of the superstructure being done and supplied, in respect of such work and material, and the remaing one-third upon the completion of the whole work.

By the Act 1st Edward VII., chapter 7 (*Assented to May 23, 1901.*)

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost, and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile;—

516. For a line of railway from a point on the Intercolonial Railway at or near New Glasgow to Country Harbour, Nova Scotia, and from a point at or near Country Harbour Cross Roads to Guysborough, in lieu of the subsidies granted by 1897, cap. 4, and 1899, cap. 7, sec. 2, paragraph 34, not exceeding 80 miles.

517. To the Quebec and New Brunswick Railway Company, for a line of railway from a point at or near St. Charles or at or near Chaudière Junction or a point on the Quebec Central Railway, near St. Anselme, Quebec, towards the present terminus of the St. Francis Branch of the Témiscouata Railway, New Brunswick, not exceeding 45 miles, and for a line of railway from the mouth of the St. Francis River, New Brunswick, westerly towards Chaudière Junction, not exceeding 15 miles, in lieu of the subsidy granted by 1900, cap, 8, sec. 2, paragraph 23; also for a line of railway in extension of the St. Francis Branch of the Témiscouata Railway to the mouth of the St. Francis River, New Brunswick, in lieu of the subsidy granted by 1899, cap. 7, sec. 2, paragraph 43, not exceeding 3 miles; in all not exceeding 63 miles.

518. To the Montreal and Province Line Railway Company, for a line of railway from Farnham, Quebec, to Frelighsburg, in lieu of the subsidy granted by 1900, cap. 8, sec. 2, paragraph 37, not exceeding 19 miles.

519. For a line of railway from a point on the Intercolonial Railway at or near Windsor Junction to Upper Musquodoboit, in lieu of 1897, cap. 4, sec. 2, paragraph 23, not exceeding 40 miles.

520. For a line of railway from Pubnico, Nova Scotia, to Port Clyde or Clyde River, in lieu of the unexpended balance of subsidy granted by 1897, cap. 4, sec. 2, paragraph 29, not exceeding 31 miles.

521. To the Toronto, Lindsay and Pembroke Railway Company, for a line of railway from the western terminus of the 20 miles subsidized by 1899, cap. 7, sec. 2, paragraph 47, westerly towards Bancroft, not exceeding 20 miles, in lieu of the subsidy granted by 1900, cap. 8, sec., 2 paragraph 3; also from the terminus of previously subsidized lines at a point about 40 miles west of Golden Lake, westerly to Bancroft, not exceeding 11 miles; in all not exceeding 31 miles.

522. For a line of railway from Chipman Station, New Brunswick, to Gibson, in lieu of the subsidies granted by 1897, cap. 4, and 1899, cap. 7, sec. 2, paragraph 31, not exceeding 45 miles.

523. To the Inverness and Richmond Railway Company, for a line of railway from a point at or near Point Tupper on the Intercolonial Railway, to Broad Cove and Cheticamp, Nova Scotia, in lieu of the subsidies granted by 1897, cap. 4, 1899, cap. 7, sec. 2, paragraph 29, and 1900, cap. 8, sec. 2, paragraph 27, not exceeding 98 miles.

524. For a line of railway from Caplin to Paspebiac, Quebec, in lieu of the subsidy granted by 1899, cap. 7, sec. 2, paragraph 15, the subsidy contract to be entered into with the trustees or receivers under mortgage from the Atlantic and Lake Superior Railway Company, and to contain the conditions that the subsidy when earned shall be paid in the following manner:—

1st. To the Hamilton Bridge Works Company in payment for bridge superstructures on the said section of railway, when furnished and erected by that company, not to exceed $35,000;

2nd. For the completion of the road-bed and works incidental thereto;

3rd. Towards payment of overdue balances, pro rata, in settlement of claims for labour, boarding-house claims, and material and supplies furnished in connection with the construction of the said section of railway; in all not exceeding 30 miles.

525. To the Schomberg and Aurora Railway Company, for a line of railway from a point on the Grand Trunk Railway between King and Newmarket, Ontario, to Schomberg, in lieu of the subsidy granted by 1897, cap. 4, not exceeding 15 miles.

526. To the Ottawa and Gatineau Railway Company, for a line of railway from the end of the 62nd mile subsidized, towards Désert, in lieu of the subsidy granted by 1897, cap. 4, sec. 2, paragraph 5, not exceeding 20 miles.

527. To the Restigouche and Western Railway Company, for its line of railway from Campbellton on the Intercolonial Railway, New Brunswick, towards Grand Falls, in lieu of the subsidy granted by 1897, cap. 4, sec. 2, paragraph 10, not exceeding 20 miles.

528. To the Pontiac Pacific Junction Railway Company, for 36 miles of its railway from a point at or near Shawville, crossing the Ottawa River via Calumet Island to Pembroke, including the bridging of both channels of the Ottawa River at Calumet Island, 14 miles of which shall be in lieu of the unexpended balance of subsidy granted by 1897, cap. 4, sec. 3, paragraph 2, not exceeding $115,200.

529. To the Manitoulin and North Shore Railway Company, for its line of railway, from a point on its line of railway between Sudbury and Little Current to its junction with the line of the Algoma Central and Hudson Bay Railway, at or

near Goulais River, in addition to and in further extension of its railway subsidized by 1900, cap. 8, sec. 2, paragraph 6, an additional mileage not exceeding 130 miles.

530. For a line of railway from Grandique Ferry, Nova Scotia, to Arichat, not exceeding 8 miles.

531. To the Central Ontario Railway Company, for a further extension of its line of railway, subsidized by 1900, cap. 8, sec. 2, paragraph 5, northward, to a junction with the Canada Atlantic Railway, at or near Whitney, Ontario, not exceeding 20 miles.

532. To the Kingston and Pembroke Railway Company, for a line of railway from a point at or near Sharbot Lake, Ontario, via Lanark, to Carelton Place, not exceeding 41 miles.

533. To the Norwood and Apsley Railway Company, for a line of railway from Norwood, Ontario, to the village of Apsley, not exceeding 30 miles.

534. For a line of railway from a point on the Dominion Atlantic Railway at or near Wolfville, Nova Scotia, to the Government pier on the Basin of Minas, not exceeding one mile.

535. To the Algoma Central and Hudson Bay Railway Company, for a line of railway from Sault Ste Marie to a point on the Canadian Pacific Railway at or near White River, in the district of Algoma, in extension of the subsidy granted to the Algoma Central Railway by 1899, cap. 8, sec. 2, paragraph 23, and by 1900, cap. 8, sec. 2, paragraph 4, a further and additional mileage not exceeding 135 miles.

536. For a line of railway from Bridgetown, Nova Scotia, to Middleton, in extension of the line subsidized by 1900, cap. 8, sec. 2, paragraph 28, not exceeding 11 miles.

537. For a line of railway from a point on the Grand Trunk Railway at or near Burk's Falls, Ontario, to the Maganetawan River, not exceeding two miles.

538. For a line of railway between Halifax and the Central Railway, Nova Scotia, from the end of the 40th mile from Halifax, subsidized by 1900, cap. 8, sec. 2, paragraph 40, to a junction with the Central Railway, Nova Scotia, not exceeding 30 miles.

539. For a line of railway from a point on the Algoma branch of the Canadian Pacific Railway at or near Bruce Lake Station, northerly to a point at or near Rock Lake, in the district of Algoma, not exceeding 9 miles.

540. For a line of railway from Roberval, Quebec, westward towards James Bay, not exceeding 60 miles.

541. For a line of railway from a point upon the Stonewall branch or the Selkirk branch of the Canadian Pacific Railway to Icelandic River by way of Gimli, not exceeding 35 miles.

542. To the Restigouche and Western Railway Company, for an extension of its line of railway from the 50th mile from Campbellton already subsidized, westward, to effect a junction with its line of railway subsidized 27 miles east from the St. John River, not exceeding 33 miles.

543. For a line of railway from Duncan Lake towards Lardo or Arrow Lake, British Columbia, or from Lardo to Arrow Lake, in lieu of the subsidy granted by 1900, cap. 8, sec. 2, paragraph 21, not exceeding 30 miles.

3. The Governor in Council may grant to the Ottawa and Gatineau Railway, for its unearned balance of subsidy upon the 62 miles of its line of railway from Hull towards Désert, granted by 1897, chap. 4, sec. 3, paragraph 3, a sum not exceeding $35,872.

4. The subsidies hereby authorized, and any subsidies heretofore authorized under any Act of Parliament of Canada still in force but not fully paid, towards the construction of any railway or bridge, shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the

Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows:—

(*a.*) upon the completion of the work subsidized; or

(*b.*) by instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken; or

(*c.*) upon progress estimates on the certificate of the Chief Engineer of Government Railways, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than sixty thousand dollars; or

(*d.*) with respect to (*b.*) and (*c.*), part one way, part the other.

5. The subsidy of 66 miles granted to the Manitoulin and North Shore Railway Company for a line of railway between Little Current, on Manitoulin Island, and Sudbury, Ontario, by paragraph 6 of section 2 of chapter 8 of the statutes of 1900, may be contracted for with the company and paid, and the work may be begun and prosecuted in two sections, the first beginning at or near Victoria Mines, in the township of Denison, and extending to Sudbury, and thence north-easterly towards Lake Wahnapitae, not exceeding 33 miles; the second section beginning at Little Current and extending to and connecting with the Canadian Pacific Railway at or near Stanley, in the township of Baldwin, on the Canadian Pacific Railway, not exceeding 31 miles; subject, however, to the company carrying out the undertakings contained in paragraph 6 of section 2 of chapter 8 of the statutes of 1900.

6. The subsidies hereinbefore authorized to be granted to companies named, shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1901, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed upon a location, and according to descriptions, conditions, and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make.

7. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements, and other rights, as will afford to all railways connecting with those so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways hereby subsidized.

8. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, materials and mails over the portion of the line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars properly equipped for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed and the company performing it, and, in case of disagreement, then at such rates as are approved by the Governor in Council; and in or towards payment for such charges the Government of Canada shall

be credited by the company with a sum equal to three per cent per annum on the amount of the subsidy received by the company under this Act.

9. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

10. The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be the judge.

By the Act 3rd Edward VII., chap. 57 (assented to 24th October, 1903.)

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile :—

544. To the Tilsonburg, Lake Erie and Pacific Railway Company, for a line of railway from the present terminus at Ingersoll to Woodstock, not exceeding 9 miles, in lieu of the subsidy granted by item 26 of section 2 of chapter 7 of 1899.

545. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for a line of railway from Burketon to Bobcaygeon, not exceeding 40 miles, in lieu of the subsidy granted by item 11 of section 2 of chapter 7 of 1899.

546. To the Toronto, Lindsay and Pembroke Railway Company, for a line of railway from Golden Lake to Bancroft, not exceeding 51 miles, in lieu of the subsidy granted by item 6 of section 2 of chapter 7, 1901.

547. To the Central Ontario Railway, for a further extension of its railway from a point at or near Bancroft to a point on the Canada Atlantic Railway at or near Whitney, not exceeding 40 miles, in lieu of the subsidies granted by item 5 of section 2 of chapter 8 of 1900, and item 16 of section 2 of chapter 7 of 1901, respectively.

548. To the Strathroy and Western Counties Railway Company, for a line of railway from a point at Lambeth to Strathroy, via the villages of Delaware, Mount Brydges and Caradoc Station on the Canadian Pacific Railway, and from Strathroy northerly to Forest, Thedford or Parkhill, not exceeding in all 31 miles, in lieu of subsidies granted by item 4 of section 2 of chapter 7, 1899, and item 2 of section 2 of chapter 8 of 1900, respectively.

549. To the Montfort and Gatineau Colonization Railway Company, to extend its railway from Arundel to a point in the municipality of the united townships of Preston and Hartwell, not exceeding 30 miles, in lieu of the subsidy granted by item 31 of section 2 of chapter 8 of 1900.

550. For a line of railway from Jonquières to La Baie des Ha Ha, not exceeding 20 miles, in lieu of the subsidy of 12 miles granted by item 21 of section 2 of chapter 7 of 1899.

551. For a line of railway from Lime Ridge northerly through the county of Wolfe in the county of Megantic, not exceeding 50 miles, being a revote of the subsidy granted by chapter 4 of 1894.

552. For a line of railway from Joliette to or near Lake Manuan, a distance not exceeding 60 miles, being a revote and in lieu of subsidies granted by chapter 4 of 1897 and chapter 8 of 1900.

553. For a line of railway from St. Eustache to St. Placide in the county of Two Mountains, not to exceed 18 miles; from St. Eustache to Sault au Recollet, 12 miles; and from St. Placide to St. Andrews, 8 miles—not exceeding in all 38 miles; being a revote of subsidies granted by chapter 24 of 1887 and chapter 5 of 1892, respectively.

554. For a line of railway from Roberval westward towards James Bay, not exceeding 60 miles, in lieu of the subsidy granted by item 25 of section 2 of chapter 7 of 1901.

556. For a line of railway from Yamaska to Lotbinière, a distance not exceeding 70 miles, in lieu of the subsidy granted by item 27 of section 2 of chapter 7 of 1899.

557. To the Ottawa, Northern and Western Railway Company, for that portion of its line from a point at the east end of the Hull station yard of the Canadian Pacific Railway to a point of junction with the Interprovincial Bridge approach in the city of Hull, not exceeding one mile; and for a line of railway to the boundary line of the city of Hull from a point on the Ottawa and Gatineau Railway, now the Ottawa, Northern and Western Railway, not exceeding one-quarter of a mile; in lieu of any balance of mileage subsidized by items 12 and 39 respectively of section 2 of chapter 7 of 1899.

558. To the International Railway Company of New Brunswick (formerly the Restigouche and Western Railway Company), for a line of railway from the western end of the ten miles of its railway, as already constructed from Campbellton towards a point on the St. John River between Grand Falls and Edmundston, not exceeding 67 miles, being a revote, and in lieu of subsidies granted by chapter 4 of 1897, item 42 of section 2 of chapter 7 of 1899, and item 22 of section 2 of chapter 8 of 1900.

559. For a line of railway from Woodstock to the International Boundary, not exceeding 26 miles, being a revote of the subsidy granted by chapter 4 of 1894.

560. To the St. John Valley Railway Company, for a line of railway from a point on the Canadian Pacific Railway at or near Welsford or Westfield, or between the said two points, to Gagetown, not exceeding 30 miles, being a revote of the subsidy granted by chapter 4 of 1897.

561. To the Shediac and Coast Railway Company, for a line of railway from Shediac to Shemogue and towards Cape Tormentine, in Westmoreland County, not exceeding 38 miles, in lieu of the subsidy granted by item 25 of section 2 of chapter 8 of 1900.

562. To the Mabou and Gulf Railway Company, Limited, for a line of railway from Mabou Coal Mines to a point at or near Glendyer, thence to Orangedale on the Intercolonial Railway, not exceeding 34 miles, a revote of the subsidy granted by chapter 4 of 1894, and in substitution of the 25 miles subsidized thereby from Orangedale to Broad Cove.

563. To the Nova Scotia Eastern Railway Company, Limited, for a line of railway from New Glasgow to Cross Roads, Country Harbour, thence to the town of Guysborough, and thence to the Strait of Canso; with a branch from Cross Roads, Country Harbour, aforesaid, down the Country Harbour River to the Deep Waters thereof, not exceeding 116 miles; in lieu of subsidies for 40 and 80 miles granted by items 4 and 1, respectively, of section 2 of chapter 7 of 1901.

564. For a line of railway from Debert Station on the Intercolonial Railway to Debert Coal Mine, not exceeding 4½ miles, in lieu of the subsidy granted by item 29 of section 2 of chapter 8 of 1900.

565. For a line of railway from a point on the Joggins Railway near River Hebert Railway Bridge to the village of Minudie, not exceeding 6 miles, being a revote and in substitution of subsidy granted by chapter 4 of 1894.

566. To the Middleton and Victoria Beach Railway Company, Limited, for a line of railway from Victoria Beach to Middleton, not exceeding 41 miles, in lieu of subsidies granted by item 28 of section 2 of chapter 8 of 1900, and by item 21 of section 2 of chapter 7 of 1901.

567. To the Halifax and South-western Railway Company, for the following lines of railway:—

(*a.*) A line of railway from a point at or near Halifax to a point on the Central Railway at or near Mahone Bay, not exceeding 68 miles.

(*b.*) A line of railway from a point on the Central Railway at or near Bridgewater towards Barrington Passage, not exceeding 77 miles.

(*c.*) A line of railway from a point at or near New Germany on the Central Railway to a point at or near Caledonia, not exceeding 22 miles.

(*d.*) A line of railway from a point at or near Caledonia to Liverpool, not exceeding 29 miles.

The subsidies to the said lines of railway being granted in lieu of subsidies granted by items 17, 18, 35 and 36 of section 2 of chapter 7, 1899 by items 26 and 40 of section 2 of chapter 8 of 1900, and items 5 and 23 of section 2 of chapter 7 of 1901, respectivley.

568. To the Inverness Railway and Coal Company, formerly the Inverness and Richmond Railway Company, Limited, for 8 miles of railway between Point Tupper and Broad Cove; and for a line of railway not exceeding 37 miles, from Cheticamp to a point on the line already built between Broad Cove and Point Tupper, being a revote and in substitution of the subsidy granted by chapter 4 of 1897.

569. For a line of railway from a point at or near Wolfville on the Dominion Atlantic Railway to the Government pier on the Basin of Minas, not exceeding one mile, in lieu of the subsidy granted by item 19 of section 2 of chapter 7 of 1901.

570. To the Nicola, Kamloops and Similkameen Coal and Railway Company, for a line of railway from a point at or near Spence's Bridge on the Canadian Pacific Railway to Nicola Lake, not exceeding 45 miles, being a revote of subsidies granted by chapter 5 of 1892 and chapter 4 of 1894.

571. For a line of railway from Winnipeg Beach or Teulon to a point on Icelandic River, by way of Gimli, not exceeding 35 miles, in lieu of the subsidy granted by item 26 of section 2 of chapter 7 of 1901.

572. To the Edmonton, Yukon and Pacific Railway Company, for a line of railway from the town of Strathcona to Edmonton, and thence westerly towards the Yellow Head Pass, a distance not exceeding 50 miles, in lieu of the subsidy granted by item 41 of section 2 of chapter 7 of 1899.

573. To the St. John Valley and Rivière du Loup Railway Company, for a line of railway from Fredericton to Woodstock, not exceeding 59 miles, in lieu of the subsidy granted by item 5 of section 2 of chapter 7 of 1899.

574. For a line of railway from Hawkesbury, Ontario, to South Indian, not exceeding 35 miles, in lieu of the subsidy granted by item 22 of section 2 of chapter 7 of 1899.

575. To the Tilsonburg, Lake Erie and Pacific Railway Company, for a line of railway from Woodstock northerly to a point on the Grand Trunk Railway at Berlin, or from Ingersoll to Stratford, or to any point on the Grand Trunk Railway between these places, not exceeding 35 miles, being in addition to and continuation of the 9 miles mentioned in item 1 of this section (544).

576. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the present terminus of its railway, near Baptiste, easterly to a point at or near Renfrew, not exceeding 75 miles.

577. To the Nepigon Railway Company, for a line of railway from Lake Superior to Lake Nepigon, and from a point on the north shore of Lake Nepigon northerly, not exceeding 80 miles.

578. To the Manitoulin and North Shore Railway Company, for a line of railway from Little Current on its present line, to Sudbury, and thence towards the main line of the Canadian Pacific Railway Company, not exceeding 30 miles, in lieu of the subsidy for 21 miles granted by item 38 of section 2 of chapter 7 of 1899.

579. To the Thunder Bay, Nepigon and St. Joe Railway Company, for a line of railway from Port Arthur north-easterly, not exceeding 50 miles.

580. To the Timagami Railway Company, for a line of railway from a point at or near Sturgeon Falls in a north-westerly direction to a point on the westerly shore of Lake Timagami in the district of Nipissing, not exceeding 50 miles.

581. To the Bay of Quinté Railway Company, for further extension of its line of railway, from the northern terminus thereof, commencing from a point at or near Actinolite, thence in a north-westerly direction, via the villages of Queensboro' and Bannockburn, to a point in the township of Marmora or Lake in Hastings County, not exceeding 20 miles in all.

582. To the Bruce Mines and Algoma Railway Company, for 21 miles from the end of its line, as subsidized by chapter 7 of 1901, northward, not exceeding 21 miles.

583. To the James Bay Railway Company, for a line of railway from Toronto, via the east side of Lake Simcoe, to a point at, near, or beyond Sudbury, through Parry Sound, not exceeding 265 miles, in lieu of two subsidies granted by chapter 8 of 1900, for 35 and 20 miles, respectively, from Parry Sound towards James Bay.

584. To the Quebec and Lake St. John Railway Company, for one mile of railway from Roberval to the Government wharf at Lake St. John.

585. To the Montfort and Gatineau Colonization Railway Company, for the extension of its line of railway from Morin Flats to St, Jerome, to connect with the Great Northern Railway, not exceeding 22 miles.

586. To the Interprovincial and James Bay Railway Company, for a line of railway from Lake Timiskaming at the present terminus of the Canadian Pacific Railway line, in a northerly direction, not to exceed 50 miles.

587. For a line of railway from Waltham Station to Ferguson Point, in the county of Pontiac, not exceeding 20 miles.

588. For a line of railway from Lake Nominingue to Le Lièvre, not exceeding 35 miles.

589. For a line of railway in extension of the line from Lime Ridge into the county of Megantic to the bridge over the St. Lawrence at or near Quebec, not exceeding 30 miles.

590. To the Quebec Central Railway Company, for an extension of its line of railway from St. François to St. George, not exceeding 9 miles; also for a railway from Scott Junction to the Quebec bridge, not exceeding 22 miles.

591. For a line of railway from the station of Lac Bouchette on the Quebec and Lake St. John Railway to St. André, not exceeding 13 miles.

592. For a line of railway from Quebec towards Seven Islands, including branches to Murray Bay and Baie St. Paul, not exceeding 200 miles.

593. For a branch line from a point at or near the intersection of the Canadian Pacific Railway and the Great Northern Railway between St. Philippe d'Argenteuil and Lachute, thence in a northerly direction, passing through the village of Brownsburg, not exceeding 3 miles.

594. To the Orford Mountain Railway Company, for a line of railway from a point on its main line between Lawrenceville and Eastman to Lake Bonella, 5 miles; from Kingsbury to Windsor Mills, 10 miles; and from Eastman to the town line between the township of Bolton, east part, and the township of Potton, 12 miles—not exceeding in the whole 27 miles.

595. To the Atlantic, Quebec and Western Railway Company, for a line of railway from Gaspé to a point at or near Causapscal on the Intercolonial Railway, and from that point to Edmundston, not exceeding 260 miles; and for a line of railway from Paspebiac to Gaspé as near the shore as practicable, not exceeding 102 miles.

596. For a line of railway, in addition to and in extension of the line mentioned in item 11 (554) of this section, from Roberval towards James Bay, not exceeding 40 miles.

597. For a branch line from a point near the bridge at Trois Pistoles River on the Intercolonial Railway in a south-easterly direction to Mackenzie and Renouf Falls, on the Trois Pistoles River, not exceeding $2\frac{1}{2}$ miles.

598. To the Matane and Gaspé Railway Company, for a line of railway from a point at or near St. Octave on the Intercolonial Railway to Matane, not exceeding 30 miles.

599. To the Chateauguay and Northern Railway Company, for a line of railway from a point on its main line at or near L'Epiphanie, passing by way of the parish of St. Jacques de l'Achigan to the village of Rawdon, not exceeding 16 miles.

600. For a line of railway from the line of the Montreal and Atlantic Railway Company at St. Guillaume to the River Yamaska to join with the South Shore Railway, a distance not exceeding 12 miles.

601. For aline of railway from La Tuque on the St. Maurice River to a point on the Lake St. John Railway near the River Jeannotte, not exceeding 35 miles.

602. To the Montreal Northern Railway Company, for a line of railway from a point at or near Ste. Agathe des Monts station towards the township of Howard, in the county of Argenteuil, passing near Lakes St. Joseph and Ste. Marie, in a southerly direction, a distance not exceeding 15 miles.

603. To the International Railway Company of New Brunswick, for a line of railway, in addition to and in extension of the line of 67 miles mentioned in item 14 of this section, to a point on the St. John River between Grand Falls and Edmundston, not exceeding 33 miles.

604. To the Beersville Coal and Railway Company, for a line of railway from Adamsville on the Intercolonial Railway to a point at or near Brown's Landing or Beersville, not exceeding 7 miles.

605. To the York and Carleton Railway Company, for a line of railway from its present terminus westerly, not exceeding 5 miles.

606. To the Mabou and Gulf Railway Company, Limited, for a line of railway from a point on the Intercolonial Railway at or near Mines Road Station to the wharf at Caribou Cove, not exceeding 4 miles, being in addition to subsidy mentioned in item 18 (562) of this section.

607. To the Nova Scotia Eastern Railway Company, Limited, for a line of railway from Dartmouth through the Musquodoboit Valley to a point at or near Melrose to connect there with the railway mentioned in item 19 (563) of this section, not exceeding 120 miles.

608. To the Midland Railway Company, Limited, for a line of railway from Truro northerly towards Brule, not exceeding 34 miles.

609. For a line of railway from St. Peters to Louisburg, not exceeding 50 miles.

610. To the Koetenay Central Railway Company, for a line of railway from Golden to the International Boundary Line, via Windermere and Fort Steele, and crossing the Crow's Nest Railway at or near Elko, not exceeding 186 miles.

611. To the Kettle River Valley Railway Company, for a line of railway from Grand Forks to a point 50 miles up the North Fork and West Fork of the North Fork of Kettle River, not exceeding 50 miles.

612. For a line of railway from Wellington to Union Bay, not exceeding 55 miles.

613. For a line of railway from Midway to Vernon, not exceeding 150 miles.

614. To the St. Mary's River Railway Company, for a line of railway from Spring Coulee, crossing St. Mary's River to Cardston, 16 miles, and from a point on this line to or near the intake of the irrigation canal, about 16 miles, in all not exceeding 32 miles.

615. For a line of railway from Dawson to Stewart River, passing at or near Grand Forks, not exceeding 84 miles.

616. To the Canadian Pacific Railway Company, for a branch line from a point on the main line between Moosomin and Elkhorn, north-westerly to a point in the neighbourhood of the Pheasant Hills, not exceeding 136 miles.

617. For a line of railway from a point at or near Medicine Hat on the Canadian Pacific Railway to the coal fields in or near townships 12 and 13, range 6, west of the fourth principal meridian, not exceeding 8 miles.

618. To the Great Northern Railway of Canada, for a line of railway from Garneau Junction to the Quebec bridge, not exceeding 70 miles.

619. To the Halifax and South-western Railway Company, for a line of railway to Barrington Passage, in addition to and in continuation of the 77 miles mentioned in paragraph *(b)* of item 23 (567) of this section, not exceeding 35 miles.

620. To the Lake Superior, Long Lake and Albany Railway Company, for a line of railway from Peninsula Harbour in a northerly direction, not exceeding 10 miles.

621. To the Cumberland Railway and Coal Company, for a line of railway from Parrsboro' Station to Riverside Wharf, not exceeding 1 mile.

622. To the Indian River Railway Company, for a line of railway from a point at or near the north end of Lake Megantic, thence southerly along the said lake to a point on the International Boundary, not exceeding 19 miles.

3. The Governor in Council may grant the subsidies hereinafter mentioned towards the construction of the bridges also hereinafter mentioned, that is to say :—

623. Towards the construction and completion of a railway bridge and approaches over the Nicolet River at Nicolet, in lieu of the grant under item 39 of section 2 of chapter 8 of 1900, $15,000.

624. Towards the construction of the steel superstructure of a railway bridge on the St. Francis River, in the county of Yamaska, in lieu of the grant under item 38 of section 2 of chapter 8 of 1900, but subject to the same conditions as expressed therein, payable to the Canadian Bridge Company of Walkerville, as their claim may appear for work already done on the said bridge, $50,000.

625. To the Canadian Bridge Company of Walkerville. to strengthen and complete the foundation and approaches to the bridge over the St. Francis River subsidized in favour of the South Shore Railway Company by section 3 of chapter 7 of 1899, $35,000, which amount shall remain the first charge on the road, and shall be recouped to the Treasury out of subsidies earned or to be earned, $35,000.

626. To the Chateauguay and Northern Railway Company, in addition to the subsidy for the Bout de l'Ile bridge granted by item 33 of section 2 of chapter 8 of 1900, $[illegible]0,000.

4. The subsidies hereby authorized towards the construction of any railway or bridge shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows :—

(*a.*) upon the completon of the work subsidized ; or

(*b.*) by instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken ; or

(*c.*) upon the progress estimates on the certificate of the Chief Engineer of the Department of Railways and Canals, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than thirty thousand dollars ; or

(*d.*) with respect to (*b*) and (*c*), part one way, part the other.

5. The subsidies hereinbefore authorized to be granted to companies named shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways and bridges respectively ; all the lines and bridges for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1903, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed according to descriptions, conditions and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the Company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make. The location also of such subsidized lines and bridges shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights, as will afford to all railways connecting with the railways and bridges so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways ; and the Governor in Council shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways and bridges hereby subsidized.

7. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, materials and mails over the portion of the line in respect of which it has received such subsidy, and whenever required, shall furnish mail cars properly equipped for such mail service ; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the department of the Government for which such service is being performed and the company performing it, and, in case of disagreement, then at such rates as are approved by the Governor in

Council: and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of the subsidy received by the company under this Act.

8. As respects all railways and bridges for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway or bridge, the cost of operating it, and the earnings thereof.

9. The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be judge.

By Special Act 4 Edward VII., Chap. 34, 1904.

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost, and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinfter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of 50 per cent on so much of the average cost of the mileage subsidized as in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

627. To the Bracebridge and Trading Lake Railway Company, for a railway from Bracebridge in Muskoka, to a point at or near Baysville, Ontario, in lieu of the subsidy granted by item 7 of section 2 of chapter 8 of 1900, not exceeding 14 miles.

628. To the Bruce Mines and Algoma Railway Company, for the following lines of railway:—

(a.) For that portion of its line of railway from Bruce Mines Junction southerly to the town of Bruce Mines, on Lake Huron, a distance not exceeding 3 miles;

(b) For the 6 miles of railway constructed from Gordon Lake Station, being the end of its line as subsidized by chapter 7 of 1901, northward to Rock Lake, a distance of 6 miles;

(c) For 12 miles from Rock Lake northward, a distance not exceeding 12 miles;

The subsidies to the said lines being granted in lieu of the subsidy granted by item 38 of section 2 of chapter 67 of 1903, not exceeding 21 miles.

629. To the Nepigon Railway Company, for the following lines of railway : –

(*a.*) From a point at or near Nepigon Station on the line of the Canadian Pacific Railway to Nepigon Lake, not exceeding 30 miles ;

(*b.*) From a point on Nepigon Bay of Lake Superior to a point on the west of Lake Helen on the line of the Nepigon Railway, not exceeding 3½ miles ;

(*c.*) From a point on the line of the Nepigon Railway at or near the crossing of the Fraser River, to a point on Lake Jesse, by way of Cameron's Falls, not exceeding 1½ mile :

(*d.*) From a point on the north shore of Lake Nepigon northerly, not exceeding 45 miles ;

The subsidies to the said lines being granted in lieu of the subsidy granted by item 33 of section 2 of chapter 57 of 1903, not exceeding 80 miles.

630. For the construction of a branch line of railway beginning at the Canadian Pacific Railway Company's main line at St. Philippe d'Argenteuil Station, or at a point between there and Grenville, thence in a northerly direction, in lieu of the subsidy granted by item 49 section 2 of chapter 57 of 1903, not exceeding 3 miles.

631. To the Chateauguay and Northern Railway, for a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway in or near the Town of Joliette, passing at or near the Town of L'Assomption, Quebec, together with a spur line into the said town, in lieu of the subsidy granted by item 32 of section 2 of chapter 8 of 1900, not exceeding 42 miles.

632. To the Great Northern Railway Company of Canada, to enable it to extend its railway from Arundel to a point in the municipality of the united Townships of Preston and Hartwell, Province of Quebec, in lieu of the subsidy granted to the Montford and Gatineau Colonization Railway by item 6 of section 2 of chapter 57 of 1903, not exceeding 30 miles.

633. To the Chateauguay and Northern Railway Company, for a branch line from a point on its main line at or near Charlemagne, thence northerly and westerly to a point on the Montford and Gatineau Railway at or near Morin Flats, in lieu of the subsidy granted to the Montford and Gatineau Colonization Railway by item 41 of section 2 of chapter 57 of 1903, not exceeding 22 miles.

634. To the Ottawa River Railway Company, for a line of Railway from a point at or near St. Agathe des Monts Station towards the township of Howard in the County of Argenteuil, passing near Lakes St. Joseph and St. Marie, in a southerly direction, in lieu of the subsidy granted to the Montreal Northern Railway Company by item 58 of section 2 of chapter 57 of 1903, not exceeding 15 miles.

635. To the Ottawa River Railway Company, for a line of railway between a point in the Parish of St. Andrews, in the County of Argenteuil, and a point in the Parish of St. Lawrence, in the County of Jacques Cartier, passing through the Parishes of St. Placide, St. Eustache and St. Martin, in lieu of the subsidy granted by item 10 of section 2 of chapter 57 of 1903, not exceeding 38 miles.

636. For a line of railway from Lardo towards Upper Arrow Lake, British Columbia, in lieu of the subsidy granted by item 29 of section 2 of chapter 7 of 1903, not exceeding 30 miles.

637. To the Western Alberta Railway Company, from a point on the United States boundary, west of range 27, northwesterly towards Anthracite, in the district of Alberta, in lieu of the subsidy granted by item 40 of section 2 of chapter 7 of 1899, not exceeding 50 miles.

3. The Governor in Council may grant the subsidy hereinafter mentioned towards the construction of the bridge also hereinafter mentioned, that is to say :—

638. To the Chateauguay and Northern Railway Company, the balance remaining unpaid of the subsidy granted by item 33 of section 2 of chapter 8 of 1900, for a single-track standard railway bridge, with two roadways 10 feet wide for free vehicular traffic, the same as upon a public highway, from Bout de L'Ile to Charlemagne at the Junction of the Ottawa and St. Lawrence Rivers, a sum not exceeding $51,000.

4. The subsidies hereby authorized towards the construction of any railway or bridge shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows :—

(*a*.) Upon the completion of the work subsidized ; or

(*b*.) By instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken ; or

(*c*.) Upon the progress estimates on the certificate of the Chief Engineer of the Department of Railways and Canals, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than thirty thousand dollars ; or

(*d*.) With respect to (*b*) and (*c*), part one way, part the other.

5. The subsidies hereinbefore authorized to be granted to companies named shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways and bridges for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1904, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed according to descriptions, conditions and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the Company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make. The location also of such subsidized lines and bridges shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Board of Railway Commissioners for Canada may at all times provide and secure to other companies such running powers, traffic arrangements and other rights, as will afford to all railways connecting with the railways and bridge so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways : and the said Board shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways and the bridge hereby subsidized. Provided always that any decision of the said Board made under this section may be at any time varied, changed, or rescinded by the Governor in Council as he deems just and proper.

7. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transpor-

tation for men, supplies, materials and mails over the portion of the lines in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars properly equipped for such mail service ; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed, and the company performing it, and, in case of disagreement, then at such rates as are approved by the Board of Railway Commissioners for Canada ; and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under the Act.

8. As respects all railways and the bridge for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway or bridge, the cost of operating it, and the earnings thereof.

9. The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be the judge.

10. Whenever a contract has been duly entered into with a company for the construction of any line of railway hereby subsidized, the Minister of Railways and Canals, at the request of the company, and upon the report of the Chief Engineer of Government Railways, and his certificate that he has made careful examination of the surveys, plans and profile of the whole line so contracted for, and has duly considered the physical characteristics of the country to be traversed and the means of transport available for construction, naming the reasonable and probable cost of such construction, may, with the authorization of the Governor in Council, enter into a supplementary agreement, fixing definitely the maximum amount of the subsidy to be paid, based upon the said certificate of the Chief Engineer, and providing that the company shall be entitled to be paid, as the minimum, the ordinary subsidy of $3,200 per mile, together with sixty per cent of the difference between the amount so fixed and the said $3,200 per mile, if any ; and the balance, forty per cent, shall be paid only on completion of the whole work subsidized, and in so far as the actual cost, as finally determined by the Chief Engineer, entitles the company thereto : Provided always—

(a.) that the estimated cost, so certified, is not less on the average than $18,000 per mile for the whole mileage subsidized ;

(b.) that no payment shall be made except upon a certificate of the Chief Engineer that the work done is up to the standard specified in the company's contract ;

(c.) that in no case shall the subsidy exceed the sum of $6,400 per mile.

1. Whenever a contract has been duly entered into with a company for the construction of any line of railway subsidized by either of the Acts mentioned in the preamble, the Minister of Railways and Canals, at the request of the Company and upon the report of the chief engineer of government railways, and his certificate that he has made careful examination of the surveys, plans and profiles of the whole line so contracted for and has duly considered the physical characteristics of the country to be traversed and the means of transport available for construction, naming the probable and reasonable cost of such construction, may, with the authorization of the Governor in Council, enter into a supplementary agreement, fixing definitely the maximum amount of the subsidy to be paid, based upon the said certificate of the chief engineer,

and providing that the company shall be entitled to be paid, as the minimum, the ordinary subsidy of $3,200 per mile, together with sixty per cent of the difference between the amount so fixed and the said $3,200 per mile, if any : and the balance, forty per cent, shall be paid only on completion of the whole work subsidized, and in so far as the actual cost, as finally determined by the chief engineer, entitles the company thereto : Provided always—

(a.) that the estimated cost, so certified, is not less on the average than eighteen thousand dollars per mile for the whole mileage subsidized ;

(b.) that no payment shall be made except upon a certificate of the chief engineer that the work done is up to the standard specified in the Company's contract :

(c.) that in no case shall the subsidy exceed the sum of six thousand four hundred dollars per mile.

2. In construing this Act the word "cost" shall have the meaning assigned to it by the Act authorizing the granting of the subsidy.

PART IV

MISCELLANEOUS STATEMENTS

No.

SUBSIDY AGREEMENTS for the Construction of Railways

No. of Contract	Date of Signature.	Name of Railway.	Line of Railway to be Constructed.	Authority for Execution.	
				Act Parliament.	Order in Council.
15771	Feb. 25, 1905	Atlantic, Quebec & Western Ry. Co.	From Caspé to Causapscal to Edmundson, and from Paspebiac to Gaspé.	Can., 1903, c. 57.	Jan. 28, 1905.
15609	Oct. 7, 1904	Bracebridge & Trading Lake Ry. Co.	From Bracebridge, in Muskoka, to a point near Baysville, Ont.	Can., 1904, c. 34.	Oct. 3, 1904.
15613	" 20, 1904	Bruce Mines & Algoma Ry. Co.	From Gordon Lake Station to Rock Lake.	Can., 1904, c. 34.	Sept. 19, 1904.
15720	Jan. 28, 1905	" "	From Bruce Mines Jct. to town of Bruce Mines.	Can., 1904, c. 34.	Jan. 7, 1905.
15596	Oct. 5, 1904	Cape Breton Ry. Co., Ltd.	From St. Peter's to Louisburg. . .	Can., 1903, c. 57.	Feb. 12, 1904.
15645	Nov. 12, 1904	Chateauguay & Northern Ry. Co.	Balance of subsidy for bridge from Bout de L'Ile to Charlemagne.	Can., 1904, c. 34.	Sept. 26, 1904.
15646	" 12, 1904	" "	Additional grant for Bout de L'Ile Bridge.	Can., 1903, c. 57.	" 26, 1904.
15860	May 13, 1905	International Ry. Co. of New Brunswick.	From W. end of its 10 mi. towards point on St. John River between Grand Falls and Edmundston, &c.	Can., 1903, c. 57.	May 8, 1905.
15580	Sept. 8, 1904	James Bay Ry. Co.	From Toronto to Sudbury.....	Can., 1903, c. 57.	Dec. 24, 1903, & July 23, 1904.
15617	Oct. 20, 1904	Kootenay & Arrowhead Ry. Co.	From Lardo towards Upper Arrow Lake, B.C.	Can., 1904, c. 34.	Sept. 23, 1904.
15739	Feb. 1, 1905	Klondike Mines Ry. Co.	From Dawson to Stewart River. .	Can., 1903, c. 57.	May 7, Dec. 24, 1904, & Jan. 7, 1905.
15626	Oct. 28, 1904	Minudie Coal Co., Ltd.	From point on Joggins Ry. to village of Minudie.	Can., 1903, c. 57.	Sept. 19, 1904.
15917	July 5, 1905	Mabou & Gulf Ry. Co., Ltd.	From Mabou Coal Mines to point near Glendyer, thence to Orangedale on I.C.R.	Can., 1903. c. 57.	June 28, 1905.
15956	" 28, 1905	Midway & Vernon Ry. Co.	From Midway to Vernon.....	Can., 1903, c. 57.	" 28, 1905.
15846	April 27, 1905	Nicola, Kamloops & Similkameen Coal & Ry. Co.	From Spence's Bridge on C.P.R. to Nicola Lake.	Can., 1903, c. 57.	Apr. 20, 1905.
15787	Mar. 9, 1905	Orford Mountain Ry. Co.	From Eastman to Town-line bet. Tp. of Bolton, E. pt., and Tp. of Potton.	Can., 1903, c. 57.	Feb. 10. 1905.
15963	June 12, 1905	" "	From Kingsbury to Windsor Mills.	Can., 1903, c. 57.	Mar. 25, 1905.
15910	" 23, 1905	" "	From point on main line between Lawrenceville and Eastman to Lake Bonella.	Can., 1903, c. 57.	" 25, 1905.
15606	Oct. 12, 1904	Quebec & Lake St. John Ry. Co.	From La Tuque, on St. Maurice River, to point near River Jeannotte.	Can., 1903, c. 57.	May 5, 1904.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 23, 1905.

1.

entered into during the Fiscal Year ended June 30, 1905.

Amount of Subsidy.		Number of Miles Subscribed.	Maximum Grade. Feet per Mile.	Radius of Curvature Not less than.	Width of Clearing Each Side.	Width of Cutting.	Embankment.	Steel Rails, lb. per Lineal Yard.	Date for Completion.
Per Mile.	Not exceeding.								
$	$		Feet.	Feet.	Feet.	Feet.	Feet.	Lb.	
3,200	6,400 p. mile.	362	79	955	50	20	15	56	Aug. 1, 1907
3,200	6,400 "	15	106	716	50	20	15	56	Oct. 31, 1905
3,200	6,400 "	6	80	573	50	20	15	56	Dec. 1, 1904
3,200	6,400 "	3	128	1,146	50	20	15	56	July 1, 1905
3,200	6,400 "	50	52·80	818	50	20	15	56	Aug. 1, 1907
.....	51,000 "	.....	.....	.....	.....	.....	.....	.....	Oct. 31, 1904
.....	50,000 "	.....	.....	.....	.....	.....	.....	.....	" 31, 1904
3,200	6,400 "	67 & 33	80	573	50	20	15	56	Aug. 1, 1907
3,200	6,400 "	265	52·80	955	50	20	15	56	" 1, 1907
3,200	6,400 "	30	106	410	50	20	14	56	Sept, 1, 1905
3,200	6,400 "	84	159	320	30	16	12	52	Aug. 1, 1907
3,200	6,400 "	6	70	637	50	20	15	56	Oct. 1, 1905
3,200	6,400 "	34	224	528	50	20	15	56	July 1, 1907
3,200	6,400 "	150	106	478	50	20	15	56	" 1, 1907
3,200	6,400 "	45	58·08	478	50	20	15	56	Aug. 1, 1907
3,200	6,400 "	12	52·80	818	33	20	15	56	Feb. 1, 1906
3,200	6,400 "	10	74	717	33	20	15	56	July 1, 1907
3,200	6,400 "	5	95	1,146	33	20	15	56	" 1, 1906
3,200	6,400 "	35	52·80	716	50	20	15	56	Dec. 1. 1905

HAZEN HANSARD,
Law Clerk.

No. 2.

CONTRACTS entered into during the Fiscal Year ended June, 1905.

1.—INTERCOLONIAL RAILWAY.

No. of Contract.	Date of Signature.	Contractors.	General Description
	1904.		
15598	Sept. 29	Henry Crawford	Provide and erect pipes, fitting valves, &c., in connection with engine house at St. John, N. B.
15599	" 29	H. Boulay & Co	Addition to freight shed at St. Moïse, Que.
15600	" 2	Thomas A. Barnhill	Erect freight shed and platform at Chatham Junction, N. B.
15601	" 29	Montgomery & Beard	Erect station and dwelling at St. Leonard Junction.
15605	" 29	Wyckoff Pipe & Creosoting Co.	140,000 ft. B. M. of pine.
15608	Oct. 12	J. B. McManus, Ltd	Protection pier at Point Tupper, N. S.
15610	Sept. 30	Galena Signal Oil Co	Supply lubricating oils.
15611	" 30	" " "	Supply signal oil.
15615	Oct. 20	F. L. Dixon	Erect station and baggage room at Stellarton, N. S.
15622	" 20	A. D. Falconer	Construct engine house at Pirate Harbour, N. S.
15625	" 19	Thomas A. Barnhill	Erect office and stores building at Pirate Harbour, N.S.
15640	Nov 10	Rhodes, Curry & Co., Ltd.	Private car for Governor General.
15641	" 10	" "	Erect station at Maccan, N.S.
15642	" 10	Thomas A. Barnhill	Erect station, &c., at Bayfield Road, N.S.
15648	Sept. 20	Algoma Steel Co., Ltd	Supply 10,000 tons 80 lb. steel rails.
15649	Oct. 21	" "	" " " "
15657	Nov. 19	Wilfrid Marchand	Extension to freight shed and platform, &c., at St. André, Que.
15659	" 19	Beazley, Bros.	Construct quay wall of cribwork at Halifax, N.S.
15664	" 25	N. H. Roy	Erect station and freight shed at Belledune Church Road.
15673	" 26	Thomas A. Barnhill	Erect freight shed and platform at Debert, N.S.
15674	" 25	N. E. Montgomery	" " " at St. Cyrille, Que.
15676	" 19	Montgomery & Beard	" " " at Charlotte, St. George and St. Edward, Que.
15680	Dec 20	Rhodes Curry & Co., Ltd	Erect station at Antigonish, N.S.
15686	" 20	John Starr, Son & Co., Ltd	Changes and additions to electric installation at station at Halifax, N.S.
15687	" 20	Faulkner & Falconer	Erect station and freight shed at Granton, N.S.
15690	" 20	Thomas A. Barnhill	Addition to station, &c., at Hilden, N.S.
15694	" 20	Cloutier & Gaudreau	Erect station at Villeroy Junction, Que.
15696	" 20	M. McMillan	Erect shed and platform, &c., at North Sydney, N.S.
15697	" 20	Cloutier & Gaudreau	" " at Laurier, Que.
15698	" 20	Chappell, Bros. & Co., Ltd	Erect station at Sydney, N.S.
	1905.		
15706	Jan. 19	Rhodes, Curry & Co., Ltd.	Erect engine house, &c., Truro, N.S.
	1904.		
15710	Dec. 15	Tilman D. LeBlanc	Erect transfer shed at Moncton, N.B.
	1905.		
15711	Jan. 9	Rhodes, Curry & Co., Ltd.	Erect station at Pictou, N.S.
	1904.		
15713	Nov. 10	Emil A. Wallberg	Fan system heating for two car-shop extensions at Moncton, N.B.
15715	Dec. 20	"	Erect 80,000 gal. water tank at Ste. Flavie and Chaudière Junction, Que.
	1905.		
15722	Jan. 16	Reid & Archibald	Construct creosoted pile wharf at Halifax, N.S.
15723	" 26	Canadian Bridge Co., Ltd.	Erect bridges at Sutherland, La Planche, Sackville and Salmon River.
15736	" 20	Auguste Lavoie	Erect foreman's office and stores building at Ste. Flavie, Que.

2.—CONTRACTS entered into during the fiscal year ended June, 1905—*Continued.*

1.—INTERCOLONIAL RAILWAY—*Continued.*

No. of Contract.	Date of Signature.	Contractors.	General Description.
	1904.		
15737	Dec. 5	Thomas Barnhill	Erect building for passengers and freight at South Uniacke, N.S.
	1905.		
15738	Jan. 25	City of Sydney	Supply water to I.C.R.
15743	" 27	Cloutier & Gaudreau	Remodel station at St. Pacome, Que.
15753	" 20	J. B. McManus, Ltd	Repair cribwork on Courtney Bay Branch.
15757	Feb. 8	Thomas A. Barnhill	Erect freight shed, &c., at Mulgrave, N.S.
15758	" 6	Town of Stellarton	Supply water to I.C.R.
15761	" 14	James W. McDonald	Double tracking between Stellarton and New Glasgow, N.S.
15762	" 14	Cloutier & Gaudreau	Remodel and enlarge station at Montmagny, Que.
15763	" 8	Canadian Locomotive Co., Ltd.	Deliver 25 locomotives.
15769	" 22	J. B. McManus, Ltd	Construct cribwork protection to bridge at Grand Narrows, N.S.
15774	" 22	American Furniture Co.	Erect station at Alton, N.S.
	1904.		
15782	Nov. 10	Emil A. Wallberg	Fan system heating for engine house at Ste. Flavie and Riviere du Loup, Que.
15784	Oct. 20		Provide pipes, fittings, &c., in connection with engine house at Chaudiere Junction, Ste. Flavie and Rivière du Loup, Que.
	1905.		
15803	Mch. 3	Reid McManus	Widen road-bed between Rockingham and Bedford Bridge, N.S.
15805	Mch. 1	Alexis Belanger	Erect station and freight shed at Ste. Helene, Que
15806	" 3	"	Improve station and erect dwelling for station master at Rivière Ouelle, Que.
15807	Feb. 22	N. E. Montgomery	Erect station at Drummondville, Que.
15808	" 22	John Goulett	Addition to station at Charlo, N.B.
15809	" 22	Thomas A. Barnhill	Remodel station and construct freight shed and platform at Canaan, N.B.
15826	Mch. 3	John F. Comeau	Addition to freight shed at Bathurst, N.B.
15823	Apl. 1	Thomas C. Simpson	Erect stores and office building at Stellarton, N.S.
15824	Mch. 16	Dominion Bridge Co. Ltd.	Erect bridge across East River at New Glasgow, N.S.
15825	" 24	S. R. Gaudet & E. LeBlanc	Erect station and improve freight shed at Memramcook, N.B.
15830	" 13	Dussault, Lemieux & Powers	Repair cribwork west of station at Levis, Que.
15839	Apl. 15	J. H. McKay	Erect engine house at Amherst, N.S.
15840	" 15	Alfred J. Stevens	Supply and set up in place induced draft plant in boiler room of new baggage room at Levis, Que.
15841	" 5	Cloutier & Gaudreau	Remodel station and build coal shed at Ste. Louise, Que.
15844	" 18	Algoma Steel Co. Ltd	Supply 10,000 tons of 80 lb. steel rails.
15848	May 1	Willard Kitchen	Single track diversion at St. Michel, Que.
15849	" 1	"	" " at St. Leonard Junction, Que.
15862	" 10	Dominion Bridge Co. Ltd.	Erect bridges at Bedford, St. Laurent, Mitchell and Morell River.
15863	" 13	Cloutier & Gaudreau	Addition to station at Ste. Anne, Que.
15864	" 15	Lachance & Fils	Erect ice house at Rivière du Loup, Que.
15866	Apl. 28	Joseph Goulett	Addition to station at St. Alexis, Que.
15872	Feb. 1	Dominion Bridge Co. Ltd.	Supply roof trusses for car shop at Moncton, N.B.
15873	May 13	Crossen Car Mfg. Co. Ltd.	Deliver 4 second class, 4 parlor, 4 postal, 4 baggage and 50 box cars.
15877	" 13	The Rathbun Co	Deliver 25 box cars.
15880	" 13	Napoleon Bernier	Addition to station at St. Charles Junction, Que.
15884	Apl. 11	O. Carbonneau	Supply water to I.C.R. at L'Islet, Que.
15888	May 13	Tilman D. LeBlanc	Addition to freight shed, etc., at Moncton, N.B.
15889	" 13	"	" " " at Sussex, N.B.
15890	Apl. 15	H. Boulay & Co	Erect station and dwelling at Salmon Lake, Que.

N.B.—*15763 cancels Contract No. 15590 which appeared in last year's report.

2.—Contracts entered into during the fiscal year ended June, 1905—*Continued.*

1.—INTERCOLONIAL RAILWAY—*Continued.*

No. of Contract.	Date of Signature.	Contractors.	General Description.
	1905.		
15904	June 12	R. H. Canavan	Erect station at Windsor, N.S.
15906	May 17	W. J. Sims	Excavation for extending yard at Halifax, N.S.
15907	Mch. 1	Rhodes, Curry & Co., Ltd.	Deliver 50 box cars.
15908	Apl 1	" "	Deliver 200 platform cars.
15911	May 13	Oxford Furniture Co., Ltd.	Erect freight shed at Oxford, N.S.
	1900.		
*15913	Nov. 30	Rhodes, Curry & Co., Ltd.	Supply 2,000 car wheels.
	1905.		
15925	June 12	Town of Antigonish	Supply water to I.C.R
15929	May 13	Frank Wilson	Extend freight shed and platform at Shubenacadie, N.S.
15931	Apl. 3	Murray M. Churchill	Addition to station at Nash's Creek, N.B.
15932	" 15	" "	Provide toilet accommodation in freight shed at Campbellton, N.B.
15933	" 15	" "	Erect baggage room and addition to station at Rogersville, N.B.
15939	May 13	F. L. Dixon & A. D. Falconer	Erect freight shed on pier No. 8, Halifax, N.S.
15946	June 20	Frank Wilson	Addition to freight shed at Truro, N.S.
	1904.		
†15554	Aug. 10	William Currie & Co.	Erect dwelling at Eel River, N.B.
†15576	July 27	Rhodes, Curry & Co., Ltd.	Supply 3,000 car wheels.
†15578	" 27	John McDougall & Co.	Supply 1 000 car wheels.
†15579	Sept. 8	Flood & Bates	Erect stores and office building at St. John, N.B.
†15585	" 8	Honore Huard	Move freight shed at Levis, Que.

2.—PRINCE EDWARD ISLAND RAILWAY.

	1904.		
15522	July 11	Willard Kitchen	Straightened main line at Curtis Creek, P.E.I.
15589	Sept. 22	J. M. Clark & Co.	Erect station at Alberton, P.E.I.
	1905.		
15716	Jan. 9	M. F. Schurman & Co.	Erect station at Pisusville and addition to York Station, P.E.I.
15717	" 9	" "	Erect station at Kensington, P.E.I.
15718	" 9	J. M. Clark & Co.	Erect station at Bloomfield and Miscouche, P.E.I.
	1904.		
15721	Dec. 20	M. F. Schurman & Co.	Erect 8 water tanks.
	1905.		
15750	Jan. 20	Ronald Campbell	Extend freight houses on railway wharf and in railway yard at Summerside, P.E.I.
15756	Feb. 6	M. F. Schurman & Co.	Construct branch of railway from Murray Harbour Line to Vernon River Bridge.
15765	" 14	Willard Kitchen	Construct branch line of railway from Cardigan to Montague Bridge.
15804	Mch. 14	" "	Connection between main line and Hillsborough River Bridge.
15852	May 2	M. F. Schurman & Co.	Erect station at St. Teresa, P.E.I.
15862	" 10	Dominion Bridge Co., Ltd.	Erect bridge at Morell River, P.E.I.
15923	" 13	M. F. Schurman & Co.	Erect stations, freight sheds, water tanks, &c.

* Too late for last year's report.
† Should come in at beginning of list of I.C.R. contracts.

2.—CONTRACTS entered into during the fiscal year ended June 30, 1905—*Continued*.

3.—BEAUHARNOIS CANAL.

No. of Contract.	Date of Signature.	Contractors.	General Description.
	1904.		
15688	Dec. 20	O. Cossette & Frère	Reconstruct south wall of supply weir at Valleyfield, Que.
	1905.		
15914	May 10	Lakefield Portland Cement Co., Ltd.	Supply 1,900 barrels of Portland cement.

4.—CHAMBLY CANAL.

	1904.		
15643	Nov. 10	J. E. Hebert	Supply 1,800 cu. yds. of crushed stone.
15667	" 10	"	Supply 13,000 cu. yds of broken stone.
15672	" 28	Valentine Trahan	Erect wharf and freight shed at St. John, Que.

5.—CORNWALL CANAL.

	1904.		
15607	Sept. 29	Smart-Turner Machine Co.	Deliver travelling crane.
15629	Nov. 7	W. J. Poupore Co., Ltd.	Widen and deepen channel between east end of revetment wall and Old Lock No. 17.
15630	" 10	J. J. Fallon	Widen and enlarge regulating weir at Old Lock No. 17.
15660	" 28	W. H. C. Mussen & Co.	Installation of concreting outfit.
15671	" 26	W. J. Poupore & Co., Ltd.	Improve channel west of upper entrance.
15675	Dec. 15	Driscoll & Fitzpatrick	Erect office building at Cornwall, Ont.
	1905.		
15800	Mch. 10	Railway Spring & Supply Co., Ltd	Supply wood and iron-working machinery for canal shops.

6.—FARRAN'S POINT CANAL.

	1904.		
15536	July 14	Acetylene Construction Co., Ltd.	Construct acetylene gas lighting system.
	1905.		
15768	Feb. 10	John Inglis Co., Ltd	Deliver steel gate lifter.

7.—GALOPS CANAL.

	1904.		
15709	Dec. 20	John O'Leary	Stopping of leakage through south bank near end of Iroquois Section.
	1905.		
15919	May 13	Edwardsburg Starch Co., Ltd.	Supply electric power for operating swing bridge at Cardinal, Ont.

8.—GRENVILLE CANAL.

	1904.		
15691	Dec. 20	O. Martineau & Fils.	Rebuild wharf at upper entrance.
	1905.		
15853	May 1	Canadian Portland Cement Co., Ltd.	Supply 3,000 barrels of Portland cement.

2.—CONTRACTS entered into during the fiscal year ended June 30, 1905.—*Continued.*

9.—LACHINE CANAL.

No. of Contract.	Date of Signature.	Contractors.	General Description.
	1904.		
15537	July 25	Quinlan & Robertson	Raising part of new St. Gabriel Shed No. 1.
15658	Nov. 19	" "	Construct concrete retaining wall, etc., on North Side of Basin No. 1.
15689	Dec. 20	" "	Repair portions of Government dry dock at W. end of Basin No. 2.
	1905.		
15788	Mar. 3	Rogers & Taylor	Construct substructure of Atwater Avenue Bridge.
15834	" 30	Phœnix Bridge and Iron Works Ltd.	Deliver 18 steel girders for Lock Gates.
15835	Apl. 1	Quinlan & Robertson	Rebuild slope walls.
15842	" 12	John Keegan	Deliver 1,200 cu. yds. of crushed stone.
15851	May 1	Quinlan & Robertson	Construct retaining wall and underpinning of old wall at Basin No. 2.
15854	" 1	Canadian Portland Cement Co., Ltd.	Supply 3,400 brls. of Portland cement.
15855	Mar. 22	Lakefield Portland Cement Co., Ltd.	" 5,300 " " "
15915	May 13	Owen Sound Portland Cement Co., Ltd.	" 7,000 " " "

10.—RIDEAU CANAL.

	1904.		
15560	Aug. 17	W. McNally & Co	Deliver 3,000 brls. of cement.
15563	" 25	Locomotive & Machine Co., of Montreal, Ltd.	Erect highway bridge at Smith's Falls, Ont.
15614	Oct. 20	John O'Leary	Construct concrete dam at Poonamalie Lock Station.
	1905.		
15918	Mar. 17	Robt. Anderson	Carbon and patrol electric light line from foot of locks to Laurier Bridge.

11.—SAULT STE. MARIE CANAL.

	1904.		
15666	Nov. 25	O'Boyle Bros.	Construct extension to south mooring pier of upper entrance.
	1905.		
15861	May 3	C. S. Boone	Deepen and widen channel way of upper entrance.

12.—SOULANGES CANAL.

	1904.		
15623	Oct. 19	Dominion Bridge Co., Ltd.	Erect steel highway bridge at Coteau du Lac, Que.

13.—TRENT CANAL.

	1905.		
15802	Feb. 15	Dominion Bridge Co., Ltd.	Construct hydraulic lock near Kirkfield, Ont.
15918	May 13	Wm. Hamilton Mf'g Co., Ltd.	Deliver dredging machinery.

2.—CONTRACTS entered into during the fiscal year ended June, 1905—*Concluded.*

14.—WELLAND CANAL.

No. of Contract.	Date of Signature.	Contractors.	General Description.
	1904.		
15570	Aug. 10	Dominion Bridge Co., Ltd	Erect bridges at Allanburg and Marlatt's Crossing.
15602	Sept. 29	Joseph Battle	Construct substructures of bridges at Allanburg and Marlatt's Crossing.
15620	Nov. 7	"	Extend culvert under Canal Street, Welland, Ont.
15644	" 10	Northern Aluminum Co., Ltd	Supply bare aluminum conductors.
15679	Dec. 15	Joseph Battle	Construct substructure of bridge No. 11.
	1905.		
15744	Jan. 20	Rowan & Elliott	Construct substructure of Niagara Street Bridge, St. Catharines, Ont.
15749	" 20	Hamilton Bridge Wks. Co., Ltd	Erect Niagara St. Bridge, St. Catharines, Ont.
15766	Feb. 20	Ahearn & Soper Ltd	Electrical transmission system.
15799	Mar. 3	J. H. Kratz & Co.	Supply lumber, etc., for 1905.
15801	" 3	Niagara Falls Machine & Foundry Co., Ltd.	Supply iron and brass castings for 1905.
15827	" 18	Magann & Phinn	Remove centre pier work of bridges at Allanburg and Marlatt's Crossing.
15831	" 15	Mason, Gordon & Co.	Supply timber for 1905.
15832	" 11	McCleary & McLean	" " "
15833	" 20	Joseph Battle	Repair foundations of locks Nos. 12, 15 and 16.
15843	April 24	Cunningham & Son	Supply iron and brass castings for 1905.
15867	May 11	Canadian Bridge Co., Ltd	Erect railway bridge between locks 24 and 25 near Thorold, Ont.
15871	" 13	Larkin & Sangster	Construct foundations of grain elevator, Pt. Colborne, Ont.
15942	" 13	Joseph Battle	Construct stone protection between Thorold and Pt. Colborne, Ont.
15947	" 10	Ahearn & Soper, Ltd	Supply arc lamp cut-outs and transformer.

HAZEN HANSARD.
Law Clerk.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 23, 1905.

No.

No. 3.—Water Power and other Public Property leased by the Department

1.—INTERCOLONIAL

No. of Lease.	Date of Signature.	Lessee.	Property Leased.
	1904.		
15561	Aug. 24..	Robert McLean	Privilege to lay water pipe at Nash's Creek, N.B.
15567	" 23..	James Skean	Land near Charlo, N.B
15577	Sept. 8..	J. C. Jones	" at Petitcodiac, N.B.
15592	" 29..	David Patterson	" at Thomson Station, N.S.
15593	" 29..	M. A. McLeod	" at Point Tupper, N.S.
15594	" 29..	McKenzie & Graham	" at Truro, N.S.
15612	Oct. 20..	Jos. Raymond	Privilege to lay ¾-in. pipe at Cedar Hall, Que.
15619	" 20..	Town of Lévis	Pts. lot 422 in Lauzon Ward, Lévis, Que.
15631	Nov. 12..	The Price Porritt Pulp and Paper Co.	Land at Rimouski Station, &c.
15650	" 10..	Amherst town	Privilege to lay an 8-in. pipe
15652	" 19..	Rothesay Water and Improvement Co.	Privilege to lay 2 pipes at Rothesay, N.B.
15653	" 28..	Canadian Oil Co., Ltd.	Privilege to lay pipe line at Tannery Siding, N.S.
15654	" 28..	Canadian Oil Co., Ltd.	Land at St. John, N.B., &c.
15668	" 28..	Town of Campbellton	" at Campbellton, N.B.
15702	Dec. 20..	Wm. H. Miller	" " "
	1905.		
15714	Jan. 9..	J. H. Hickman & Co	Land at Dorchester, N.B.
15751	" 20..	New Brunswick Coal and Ry. Co.	Privilege to maintain 4-in. pipe at Norton, N.B.
15759	Feb. 6..	O. Brouillard	Land at Carmel, Que.
	1904.		
15798	Dec. 27..	Fillmore & Morris, Ltd	Land at Amherst, N.S.
	1905.		
15819	Mch. 21..	The Desjardins Co	Land at St. André, Kamouraska County, Que.
15905	June 24..	Halifax Transfer Co.	Privilege to solicit baggage for transfer at Halifax, N.S., on trains running between Windsor Jct. and Halifax.
15912	" 24..	Town of Pictou	Privilege to lay a 6-in. pipe

2.—BEAUHARNOIS

	1904.		
15531	July 15..	Thos. Hood	Land at E. end of Govt. Dam in Parish of Ste. Cecile.

3.—CARILLON

	1905.		
15894	June 12..	Bell Telephone Co. of Canada, Ltd.	Privilege to erect telephone line

3.

of Railways and Canals during the Fiscal Year ended June 30, 1905.

RAILWAY.

Area.	Amount of Water Power.	Term.	Commencement of Term.	Terms of Payment.		
				Annual Rental.	Due each year.	First Instalment due.
				$ cts.		
.....	.....	During pleasure....	July 1, 1903	1 00	July 1..	July 1, '03
·062 acres.....	.....	"	May 1, 1904	5 00	May 1..	May 1, '04
1,800 sq. ft...	.....	"	July 1, 1904	10 00	July 1..	July 1, '04
898 sq. ft..	.....	" ...	" 1, 1904	1 00	" 1..	" 1, '04
0·47 acres.....	.....	"	May 1, 1904	5 00	May 1..	May 1, '04
0·11 "	.....	"	Sept. 1, 1904	5 00	Sept. 1..	Sept. 1, '04
.....	.....	"	Aug. 1, 1904	1 00	Aug. 1..	Aug. 1, '04
4,772, 3,194 sq. ft.	.....	21 years ren'ble for ever.	Oct. 1, 1904	1 00	Oct. 1..	Oct. 1, '04
3,395 sq. ft....	.....	During pleasure....	July 1, 1904	1 00	July 1..	July 1, '04
.....	.....	"	" 1, 1904	1 00	" 1.	" 1, '04
.....	.....	" ...	" 1, 1904	2 00	" 1..	" 1, '04
.....	.....	" ...	Nov. 1, 1904	1 00	Nov. 1..	Nov. 1, '04
0·27 acres.....	.....	"	" 1, 1904	2 00	" 1..	" 1, '04
180 sq. ft.....	.....	"	Sept. 1, 1904	.....	.....	.....
4 acres.....	.....	" ...	" 1, 1904	25 00	Sept. 1..	Sept. 1, '04
336 sq. ft.....	.....	" .	July 1, 1904	1 00	July 1..	July 1, '04
.....	.....	"	" 1, 1904	1 00	Dec. 1..	Dec. 1, '04
67·7 acres.....	.....	"	Dec. 1, 1904	10 00	" 1..	" 1, '04
80 sq. ft. ...	.....	"	July 1, 1904	1 00	July 1.	July 1, '04
2,000 sq. ft....	.....	"	" 1, 1904	1 00	" 1..	" 1, '04
.....	.....	5 years.....	May 1, 1905	500 00	Quarterly.	Aug. 1, '05
.....	.....	During pleasure....	July 1, 1904	1 00	July 1..	July 1, '04

CANAL.

57,180 sq. ft...	.....	During pleasure....	July 1, 1903	10 00	July 1..	July 1, '03

CANAL.

.....	.....	During pleasure ..	June 1, 1905	1 00	June 1..	June 1 '05

No. 3.—Water Power and other Public Property leased by the Department of

4.—CHAMBLY

No. of Lease.	Date of Signature.	Lessee.	Property Leased.
	1904.		
15550	July 25..	Town of St. John's	Pt. cad. lot, No. 1157, St. John's Que.

5.—CORNWALL

	1905.		
15783	Mch. 2..	Toronto Paper Mfg. Co.	Pt. E½ lot 14, con. 1, Township of Cornwall.

6.—GALOPS

	1904.		
15669	Nov. 26..	E. V. Dodge	Land on N. side of Cardinal section

7.—LACHINE

	1904.		
15532	July 15..	New Ontario Steamship Co., Ltd, *et al.*	400 ft. space in flour shed No. 1
15543	" 1..	F. V. Chisdell	Land at upper end of Wellington Basin, Montreal.
15547	Aug. 3..	Town of Côte St. Paul	Privilege to lay a 16" pipe, etc
15552	" 15..	Canadian Pacific Railway Co.	Privilege to lay single track along S. Bank of Canal.
15556	" 12..	Jno. McDougall Caledonian Iron Works Co.	Pt. lot 1068, St. Ann's Ward, Montreal.
15595	Sept. 29..	A. W. Hepburn	275 ft. space in flour shed No. 1
15618	Oct. 20..	C. A. Jacques	Sheds Nos. 4 and 5 on S. side of Basin No. 2.
15621	" 28..	The Ogilvie Flour Mills Co. Ltd.	Privilege to erect overhead conveyor on S. side of Basin No. 2.
15647	Nov. 10..	Montreal Street Railway Co.	Privilege to lay single track over Côte St. Paul Bridge.
	1905.		
15705	Janv. 7..	Grand Trunk Ry. Co. of Canada.	Privilege to lay 2 spur lines on North Bank of Canal.
15735	" 9..	Richelieu & Ontario Nav. Co.	Flour shed No. 2 between Basins Nos. 3 & 4.
15754	" 24..	Canada Car Co., Ltd	Privilege to run tram lines, etc., on north side of Canal.
15760	Feb. 6..	Grand Trunk Ry. Co. of Canada.	Privilege to lay a siding into premises of Canada Malting Co., St. Henri.
15767	" 8..	Dobell, Beckett & Co.	Wharf lots 9 & 10, S. E. side of Wellington Basin.
15794	" 25.	Grand Trunk Ry. Co. of Canada.	Land W. of Turcot Village
15820	Mch. 20..	The Ogilvie Flour Mills Co. Ltd.	Privilege to erect trestle bridges and to lay track line of railway on same.
15837	Apl. 14..	J. H. Huchison	Privilege to erect travelling crane in St. Henri.
15838	" 15..	Town of Lachine	Cadastre lot 807, pt. S. bank of old Canal opposite Lachine, Que.
15897	June 8..	Grand Trunk Ry. Co. of Canada.	Privilege to lay spur line on N. bank of Canal.

Railways and Canals during the Fiscal Year ended June 30, 1905—*Continued.*

CANAL.

Area.	Amount of Water Power.	Term.	Commencement of Term.	Annual Rental.	Due each year.	First Instalment due.
4,000 sq. ft....	....	21 years.....	Jan. 1, 1904	1 00	Jan. 1..	Jan. 1, '04

CANAL.

				$ cts.		
0·27 acres.....	800 h. power	21 years renewable..	Jan. 1, 1904	Land. 24 50 Water, 2,400 00	Semi-annually.	Jan. 1, '04

CANAL.

0·38 acres.....	.....	During pleasure....	Nov. 1, 1904	5 00	Nov. 1..	Nov. 1, '04

CANAL.

....	....	During pleasure....	May 1, 1904	800 00	Semi-annually.	May 1, '04
22,700 sq. ft...	... .	" ..	July 1, 1904	550 00	July 1..	July 1, '04
.....	....	"	" 1, 1904	1 00	" 1..	" 1, '04
.....	... .	21 years...	Nov. 1, 1903	600 00	Nov. 1..	Nov. 1, '03
7,600 sq. ft....	....	"	July 1, 1904	19 00	July 1..	July 1, '04
... ...	. ...	During pleasure....	June 1, 1904	275 00	Semi-annually.	June 1, '04
.....	....	" ...	Sept. 1, 1904	464 00	Semi-annually.	Sept. 1, '04
....	... .	"	Oct. 1, 1904	1 00	Oct. 1..	Oct. 1, '04
.. ..	. .. .	" . . .	July 1, 1904	1 00	July 1..	July 1, '04
.....	....	21 years.	July 1, 1904	10 00	July 1..	July 1, '04
....	....	During pleasure....	Sept. 1, 1904	336 00	Semi-annually.	Sept. 1, '04
....	....	21 years renewable..	Jan. 1, 1904	Each line, 10 00 Each tower, 10 00	Jan. 1.	Jan. 1, '04
....	.....	21 years.....	July 1, 1904	1 00	July 1..	July 1, '04
0·85 acres.....	..... .	During pleasure....	Nov. 1, 1904	425 25	Nov. 1..	Nov. 1, '04
16,575 sq. ft...	....	" ...	Feb. 1, 1905	33 00	Feb. 1..	Feb. 1, '04
.....	....	"	Mch. 1, 1905	1 00	Mch. 1..	Mch. 1, '05
....	....	"	Apl, 1, 1905	1 00	Apl. 1..	Apl. 1, '05
....	.....	"	Feb. 1, 1905	1 00	Feb. 1..	Feb. 1, '05
....	.....	20 years.....	July 1, 1905	5 00	July 1..	July, 1, '05

3.—WATER POWER and other Public Property leased by the Department

8.—RIDEAU

No. of Lease.	Date of Signature.	Lessee.	Property Leased.
	1904.		
15565	Aug. 26..	Town of Perth	Privilege to lay 2 sewer pipes
15582	July 14..	Ottawa City	Pt. of Ordnance land W. of Canal on lot No. 1, con. "C", Township of Nepean.
15583	" 25..	"	Pt. lot "K" and "I", con. "C" T'p of Nepean.
15651	Nov. 10..	John Fixter	Land in front of sub-lot No. 5 of lot 35, con. "B", Township of Nepean.
15656	" 26..	Rideau Canoe Club	Pt. lot "I", con. "C", Township of Nepean
	1905.		
15895	June 12..	J. M. Guest	Pt. lot 4, con. 1, T'p Oxford Co. of Grenville, Ont..
15909	" 24..	Jno. Woodruff	Pt. lot 17, con. 8, T'p Crosby Co. of Leeds, Ont...

9.—SAULT STE. MARIE

	1905.		
15896	June 12..	Canadian Oil Co., Ltd.	Land on N. side of N. lower entrance pier, Sault Ste. Marie, Ont.

10.—TRENT

	1904.		
15624	Oct. 28..	P. McPherson	Pt. lot 3 con. 4, Township of Eldon, County of Victoria, Ont.
15704	Dec. 20..	V. Eastwood	Pt. lot 60, Township of Eldon, County of Victoria, Ont.

11.—WELLAND

	1904.		
15564	Aug. 3..	Provincial Natural Gas & Fuel Co. of Ontario, Ltd.	Privilege to lay a 3 inch. pipe across Welland River at Chippawa, Ont.
15587	Sept. 16..	Beatrice L. Taylor	Land in Port Colborne, Ont.
	1905.		
15793	Mch. 10..	Riverside Stock Farm Co	Land in Township of Thorold, County of Welland, Ont.
15795	" 11..	Maple Leaf Rubber Co., Ltd	Land in Port Dalhousie, Ont
15796	" 3..	Mary Irvine	" " "

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 23, 1905.

of Railways and Canals during Fiscal Year ended June 30, 1905.—*Continued.*

CANAL.

Area.	Amount of water Power.	Term.	Commencement of Term.	Annual Rental.	Due each year.	First Instalment due.
....	....	During pleasure....	July 1, 1904	2 00	July 1..	July 1, '04
1·16 acres....	....	"	" 1, 1904	1 00	" 1..	" 1, '04
6·62 / 8·09 acres....	....	"	" 1, 1904	1 00	" 1..	" 1, '04
2 acres....	....	"	Oct. 1, 1904	4 00	Oct. 1..	Oct. 1, '04
7,000 sq. ft....	....	"	Dec. 1, 1904	1 00	Dec. 1..	Dec. 1, '04
3½ acres....	....	"	June 1, 1905	7 00	June 1..	June 1, '05
0·90 acres....	40 h. power..	21 years....	July 1, 1905	85 00	July 1..	July 1, '05

CANAL.

				$ cts.		
2,500 sq. ft....	....	During pleasure....	Feb. 1, 1904	5 00	Feb. 1..	Feb. 1, '05

CANAL.

				$ cts.		
·12 acres....	....	During pleasure....	Aug. 1, 1905	24 00	Monthly..	Aug. 1, '04
14·55 "	....	"	Nov. 1, 1904	14 50	Nov. 1..	Nov. 1, '04

CANAL.

....	....	During pleasure....	July 1, 1904	5 00	July 1..	July 1, '04
·48 acres....	....	"	Sept. 1, 1904	1 00	Sept. 1..	Sept. 1, '04
·290 "	....	"	Feb. 1, 1905	200 00	Feb. 1..	Feb. 1, '05
·16 "	....	"	" 1, 1905	20 00	" 1..	" 1, '05
0·232 "	....	"	" 1, 1905	1 00	" 1..	" 1, '05

HAZEN HANSARD,
Law Clerk.

No.

PROPERTY CONVEYED to the Department of Railways and Canals and

1.—INTERCOLONIAL

No. of Deed.	Date of Signature.	Grantor.	Lot.	District.
	1904.			
15573	July 15	Mrs. N. Aubin	Pt. lot 21	Ste. Flavie Parish
15683	Oct. 17	H. W. Yuill *et ux*	Land at	Truro
15684	Aug. 20	J. C. Cunning	"	Piedmont
15685	July 25	T. M. Smith *et ux*	"	"
15699	Dec. 1	Sarah Campbell	"	Jamesville
15700	June 15	Wm. Richards & Co., Ltd	"	Campbellton
15707	Nov. 18	W. D. Duncan *et al*	"	"
15708	" 3	F. W. Sumner *et ux*	"	Bathurst Parish
15746	" 12	T. McManus & C. McCrea.	"	Memramcook
15752	Dec. 14	Wm. Cunard *et ux*	"	North Sydney
15770	" 16	J. C. McDonald *et al*	"	Ottawa Brook Rd Crossi'g
15773	Nov. 7	A. Smith *et ux*	"	Sydney
	1905.			
15786	Feb. 17	C. Lagace	"	Dessaint Station
	1904.			
15797	Oct. 15	R. W. Hewsen *et ux*	"	Moncton
15858	Dec. 16	Margt. A. Byers	Land E. of Campbell Road	Halifax
15859	" 19	I. Creighton *et ux*	" " "	"
15868	Oct. 30	F. Lacroix	Pt. lot 519	St. Michel Parish
15898	Dec. 15	Emily Plant *et al*	Land at	North Sydney
	1905.			
15901	Mar. 30	Wm. R. Johnson *et ux*	"	Gloucester Jct

2.—PRINCE EDWARD

	1904.			
15681	Aug. 4	N. McLean *et ux*	Land at Curtis Creek	Tp. No. 32
15682	" 6	Hon. W. W. Sullivan *et ux*	" "	" 32
15701	Sept. 3	A. McPherson *et ux*	" "	" 64
15785	Aug. 3	S. B. Gillespie *et al*	" "	" 32

3.—CORNWALL

	1904.			
15661	Nov. 28	D. S. Tilton	Pt. of N. pt. of No. 3, con. 1, Sheik's Island.	Cornwall Township
15661	" 29	J. A. Langelier	" " "	" "
15665	" 30	Sol. Raymond	Pt. No. 4, con. 1, Sheik's Island	" "
15602	" 30	A. S. Raymond	Pts. Nos. 5 & 6, con. 1, Sheik's Island.	" "
	1905.			
15748	Jan. 20	J. Z. Raymond	Pt. W½ No. 5, con. 1, Sheik's Island.	" "
15875	May 27	Ellen Sheets	Pt. No. 2, con. 1, Sheik's Island	" "

4.

Letters Patent granted during the Fiscal Year ended June 30th, 1905 —*Concluded.*

RAILWAY.

County.	Area.	Amount.	Remarks.
		$ cts.	
Rimouski, Que	1,150 sq. ft	50 00	
Colchester, N.S	7 951, 6 499 acres	11,500 00	
Pictou, N.S	9,000 sq. ft	50 00	
"	"	100 00	
Victoria, N.S	3 23 acres	250 00	
Restigouche, N.B	1·703 "	8,000 00	
"	0·54 "	2,700 00	
Gloucester, N.B	2·81 "	75 00	
Westmoreland, N.B	0·67 "	200 00	
Cape Breton, N.S	0·42, 6·30 acres	$5,665 pr., $2,167.91 int., $310.01 costs.	
Victoria, N.S		100 00	
Cape Breton, N.S	680 sq. ft	500 00	
Kamouraska, Que	225 sq. ft	15 00	
Westmoreland, N.B	14·6 acres	14,600 00	
Halifax, N.S	0·077 "	83 00	
"	0·053 "	150 00	
Bellechasse, Que	0·645 "	245 00	
Cape Breton, N.S	0·87 "	$2,000 pr., $265.48 costs and int. at 6% from June 1, '98 to Oct. 17, '04.	
Gloucester, N.B	16·16 "	808 00	

ISLAND RAILWAY.

Queen's	0·96 acres	75 00	
"	0·70 "	35 00	
King's	0·75 "	400 00	
Queen's	1·66 "	190 90	

CANAL.

Stormont, Ont	0·65 acres	148 43	
"	0·20 "	149 52	
"	2·08 "	1,186 88	
"	0·47, 1·44 acres	474 99	
"	1·02 acres	163 14	
"	0·13 "	60 00	

No. 4.—Property Conveyed to the Department of Railways and Canals and

4.—GALOPS

No. of Deed.	Date of Signature.	Grantor.	Lot.	District.
	1903.			
*15655	May 1.	E. Smith *et ux*	No. 57, block 10	Iroquois
	1904			
15663	Oct. 31.	J. D. McLaughlin *et ux.*	Pts. W. qr. No. 11 & E½ No. 12, con. 1.	Edwardsburg Tp

5.—SOULANGES

15692	Oct. 3, '04	De Beaujeu estate	Pt. No. 454	St. Ignace du Coteau du Lac.

6.—TRENT

15741	Oct. 3, '04	B. R. Matthews, *et ux.*	Pts. No. 29, Con. 12	Otonabee Township
15742	" 3, '04	John Hull	Pt. Block 'Q'	Lakefield
15745	Dec. 30, '04	D. McRae, *et ux*	Pt. E ½ ot No. 4, Con. 11	Thorah Township
15885	Nov. 12, '04	M. Harrigan, *et ux*	Pt. No. 12, Con. 8	Douro "
15921	Sept. 7, '04	John Hull, *et ux*	Pts. of Block 'G' and E. pt. of Blocks 'F' and 'H.'	Lakefield

7.—WELLAND

*15633	June 28, '04	N. F. Box, *et ux*	Pt. No. 215	Thorold Township
*15634	" 8, '04	E. Box, *et ux*	Pt. No. 222	" "
*15635	" 30, '04	M. Hagar, *et al*	Pts. Nos. 222 and 223	" "
*15636	" 10, '04	A. B. Hagar, *et al*	" "	" "
*15637	" 30, '04	H. W. Stone, *et al*	Pt. No. 213	" "
*15638	" 22, '04	J. E. Reavely	Pt. No. 214 and 215	" "
*15639	" 9, '04	C. Silverthorn, *et al*	Pt. No. 229	" "
15856	Mar. 20, '05	Hon. R. Harcourt, *et ux.*	Pt No. 29, Bald St. and pt. No. 36 Jane St.	Welland
15936	" 8, '05	Eliz. Coulter, *et al*	Pt. No. 203, W. side of Deep Cut.	Thorold Township

* Too late for last year's Report.

Department of Railways and Canals,
Ottawa, September 23, 1905.

Letters Patent granted during Fiscal Year ended June 30, 1905.—*Concluded.*

CANAL.

County.	Area.	Amount.	Remarks.
		$ cts.	
Dundas, Ont.	0·80 acres.	1,192 33	
Grenville, Ont.	5·94 "	1,958 00	

CANAL.

Soulanges, Que.	0·125 acres.	78 85	

CANAL.

Peterborough, Ont.	0·2, 0·4 acres.	1,676 99	
"			Letters Patent.
Ontario, Ont.	2 acres.	200 00	
Peterborough, Ont.	4·22 acres.	300 00	
"	1·26 "	10,000 00	

CANAL.

Welland, Ont.	12 acres.	700 00	
"	40 "	3,800 00	
"	20 "	1,800 00	
"	30 "	9,800 00	
"	20 "	800 00	
"	34¼ "	1,800 00	
"	30 "	3,200 00	
"	0·29 "	100 00	
"	4·75 "	2,000 00	

HAZEN HANSARD,
Law Clerk.

DAMAGES released to the Department of Railways and Canals during the Fiscal Year ended June 30, 1905.

1.—INTERCOLONIAL RAILWAY.

No. of Release.	Date of Signature.	Grantor.	Description.	Amount.
	1904.			$ cts.
15528	July 14	Henry N. Paint	Damages consequent upon closing of crossing over I.C.R. property at Victoria St., near Point Tupper Station	600 00
15571	Aug. 30	Belanger & Michaud	Damages for injuries sustained while travelling on I.C.R. train	800 00
15572	" 30	Thomas Carson, Sr	Damages consequent upon closing of farm crossing ½ mile west of Elmsdale Station, N.S.	75 00
	1905.			
15857	Mar. 30	Thomas Loane	Damages to land near Grant's Brook Bridge, and for loss of 2 sheep	1 00
15865	May 4	John D. Ross	Damages for injuries sustained by his son William by falling from I.C.R. Bridge at Truro, N.S	1,054 75
15874	" 5	Michael Steele	Damages arising out of diversion of Brook and for damaging his land	300 00
15875	" 22	P. St. Laurent and J. Proulx.	Damages to land at St. Anaclet, Co. of Rimouski, Que.	45 00
	1904.			55 00
15882	Aug. 27	Richard Howard, Jr	Damages for injuries sustained at Deep Water Terminus, Halifax, N.S	77 50
15883	" 27	Louis Barnes	Damages for injuries sustained at Deep Water Terminus, Halifax, N.S	76 00
15891	" 10	Strait of Canso Marine Ry. Co.	From all claims incidental to a private road crossing I.C.R. at Point Tupper, N.S	1 00

2.—CHAMBLY CANAL.

	1904.			
15575	July 30	N. Metivier	Damages to Lots 4 and 5 of Village of Chambly Canton, and to Lot 150 of Chambly Basin	300 00
	1905.			
15725	Jan. 4	Edouard Chartier	Damages to land, Lots 227 & 228, St. Luke Parish, Iberville Co., Que.	100 00
15726	" 7	Levi Dupuis	Damages to land, Lot 231, St. Luke Parish, Iberville Co., Que	350 00
15727	" 3	F. X. Gervais	Damages to land, Lot 27, St. Luke Parish, Iberville Co., Que	100 00
15728	" 5	Julian Audette	Damages to land, Lot 30, St. Luke Parish, Iberville Co., Que	25 00
15729	" 4	J. B. Many	Damages to land, Lot 31, St. Luke Parish, Iberville Co., Que	300 00
15730	" 5	C. U. Coupal	Damages to land, Lot 28, St. Luke Parish, Iberville Co., Que	50 00
15731	" 4	C. Poirier	Damages to land, Lot 30, St. Luke Parish, Iberville Co., Que	200 00
15732	" 4	Joseph Dupuis, Sr	Damages to land, Lot 29, St. Luke Parish, Iberville Co., Que	200 00
15733	" 4	J. B. Lapalme	Damages to land, Lot 229 and 230, St. Luke Parish, Iberville Co., Que	310 00
15734	" 14	Leonie Chartier Estate	Damages to land, Lot 229 and 230, St. Luke Parish, Iberville Co., Que	40 00

3.—CORNWALL CANAL.

	1905.			
15845	Apl. 5	P. N. Tait	Damages to Lot No. 1, Sheik's Island	100 00

DAMAGES released to the Department of Railways and Canals during the Fiscal Year ended June 30, 1905.—*Concluded.*

4.—CULBUTE CANAL.

No. of Release.	Date of Signature.	Grantor.	Description.	Amount.
	1904.			
15775	Nov. 2	Patrick Ryan	Damages to land, Lots 30, 38, 39, 40 and 41, E. Range, Allumette Is., Pontiac Co	500 00
15776	Oct. 29	Alex. Ryan et al	Damages to land, Lots 26, 27 and 28, E. Range, Allumette Is., Pontiac Co	135 00
15777	" 12	Chas. J. Kelly et al	Damages to land, Lots 34 and 35, E. Range, Allumette Is., Pontiac Co	950 00
15778	" 29	Philip M. Kelly et al	Damages to land, Lots 31, 32 and 33, E. Range, Allumette Is., Pontiac Co	400 00
15779	" 29	Joseph Monk et al	Damages to land, Lot 29, E. Range, Allumette Is., Pontiac Co	165 00
15780	" 29	Bernard Spence et al	Damages to land, Lot 18, E. Range, Allumette Is., Pontiac Co	50 00
15781	Nov. 1	Anselme Bechamps	Damages to land, Lot 10, 2nd Range, Allumette Is., Pontiac Co	55 00

5.—SOULANGES CANAL.

	1905.			
15789	Oct. 8	A. Bissonnette	Damages to land, Lots 147 and 308, St. Joseph Parish, Soulanges Co., Que	150 00
15790	" 8	F. Bissonnette	Damages to land, Lots 145 and 146, St. Joseph Parish, Soulanges Co., Que	150 00
15791	" 8	Ovila Seguin	Damages to land, Lots 143 and 144, St. Joseph Parish, Soulanges Co., Que	150 00
15792	" 6	F. X. Valade	Damages to land, Lots 309 and 310, St. Joseph Parish, Soulanges Co., Que	200 00

HAZEN HANSARD,
Law Clerk.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 23, 1905.

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